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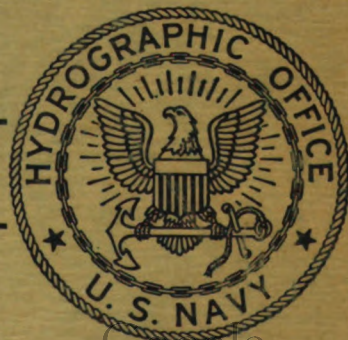
SAILING DIRECTIONS

THE MEDITERRANEAN

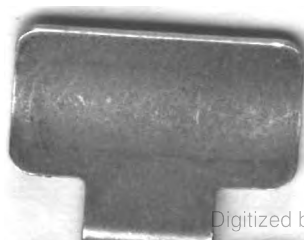
Volume V

56

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SAILING DIRECTIONS for THE MEDITERRANEAN

VOLUME V
The Aegean Sea

Second Edition
1952

Published by the U. S. Naval Oceanographic Office
under the authority of the Secretary of the Navy



United States
Government Printing Office
Washington : 1952

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Contents only (without binder) \$3.00

Change

HOW TO KEEP THIS BOOK CORRECTED

As initially published, this book contains material based upon information available in the U.S. Naval Oceanographic Office through the date given in the preface. Subsequently it should be brought up to date by replacing obsolete pages with loose-leaf change pages, which are published at appropriate intervals in consecutively numbered sets called Changes. A later Change does not automatically cancel an earlier Change, therefore each Change must be inserted in sequence as published; eventually the book will contain change pages from several different Changes. A revised List of Effective Pages included in each Change lists the correct pages comprising the complete book. The publication of new Changes, which normally occurs every twelve to eighteen months, is announced in Notice to

Mariners. Instructions for ordering Changes will be found in the front part of the book.

In the interval between Changes, information that may amend material in this book is published in the weekly Notice to Mariners. The Notice to Mariners number and paragraph number should be marked on applicable pages, as indicated by the page number at the end of each paragraph. This information should also be recorded on the Chart/Publication Correction Record Cards (NHO 5610/2) for the affected pages. The Notice to Mariners should be kept intact and reference made to it as required. Book owners will be placed on the Notice to Mariner mailing list on request to the U.S. Naval Oceanographic Office, Washington, D.C. 20390.

PREFACE

This publication, *Sailing Directions for the Mediterranean*, Volume V, is the second edition of Pub. No. 56. It is not a new edition in the usual sense, but a consolidation of the previous edition and supplementary corrective data available in the Oceanographic Office to March 29, 1952, including Notice to Mariners No. 13 of 1952.

The principal sources examined in the preparation of the edition on which this volume is based are:

Greek Sailing Directions, Vol. Alfa; Athens, 1937.

Greek Sailing Directions, Vol. Vita; Athens, 1938.

Greek Sailing Directions, Vol. Gamma, Pt. I; Athens, 1939.

Greek Sailing Directions, Vol. Gamma, Pt. II; Athens, 1939.

Mediterranean Pilot, Vol. IV, Admiralty, London, 1941, with supplement to June 3, 1944.

Portolano del Mediterraneo, Vol. 6^o; Geona, 1932, with supplement to 1938.

Mittelmeer-Handbuch, V. Teil; Berlin, 1940.

The Statesman's Year-Book, London, 1943.

Reports from United States naval vessels.

Reports from officers of the merchant marine.

Information furnished by United States consuls.

Charts, light lists, and various documents in the possession of the department.

In this publication the bearings and courses are true and are expressed in degrees from 000° (north) to 360°, measured clockwise.

The directives "steer" or "make good" a course mean, without exception, to proceed from a point of origin along a track having the identical meridional angle as the designated course. Vessels following the directives must allow for every influence tending to cause deviation from such track, and navigate so that the designated course is continuously being made good.

Bearings limiting sectors of lights are toward the light.

The directions of winds refer to the points from which they blow; of currents, the points

toward which they set. These directions are true.

The variation of the magnetic compass and the annual rate of change may be obtained from the charts.

The geographical positions (coordinates), which are given at intervals throughout the book, are approximate only and are intended to facilitate reference to the charts.

The charts quoted are the largest scale charts of the locality on issued to U.S. naval vessels by the Oceanographic Office. The Catalog of Nautical Charts and Publications shows complete Oceanographic Office chart coverage.

Distances are expressed in nautical miles, 1 mile equaling 1 minute of latitude, or approximately 2,000 yards.

Distances of less than 1 mile are expressed in fractions of a mile or in yards.

Soundings are referred to the datum of the charts and are expressed fathoms or feet.

Heights are referred to the plane of reference used for that purpose on the charts and are expressed in feet.

Light and fog signal characteristics are not described, and as a rule, light sectors are not defined; for these details the mariners should consult the Light Lists, which are published at intervals of about a year. Similarly, radio navigational aids and services are not described in detail, and the mariner is referred to Publications Nos. 117A, 117B, 118A, and 118B for a more comprehensive account.

Masters of vessels should seek from pilots, harbor masters and other local authorities the latest information relative to any special regulations in force in the particular locality visited.

Mariners are requested to notify the U.S. Naval Oceanographic Office, Washington, D.C. 20390, or one of its branch offices, of errors discovered in this publication or of additional matter considered appropriate for insertion.

Short corrections, formerly used to maintain this publication, are now being incorporated in the change pages to eliminate hand corrections by the user. If short corrections are found to be necessary in the future, a page of instructions for their use will be furnished at the time of publication.

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RECORD OF CHANGES TO PUB. NO. 56

SECOND EDITION, 1952

[illegible]

HOW TO OBTAIN CHANGES

Sales to General Public.—When this book is sold, all Changes in effect at the time are furnished at no extra cost. Subsequent Changes have a standard selling price of 35 cents each. Whenever possible, Changes should be bought from one of the local sales agents listed in Part I of the Catalog of Nautical Charts and Publications. If there is no sales agent available, Changes may be ordered by mail from the U.S. Naval Oceanographic Office, Washington, D.C., 20390 or from either of the Distribution Offices listed below. Such orders must be accompanied by check or money order made payable to the U.S. Naval Oceanographic Office. Postage stamps or Government Printing Office coupons cannot be accepted as payment. Changes will be mailed, postage paid, by regular mail. Special handling costs, such as air mail, special delivery, etc. must be borne by the purchaser.

In emergencies, Changes may be bought from one of the Branch Oceanographic Offices also listed in the catalog. Branch Offices do not handle mail orders.

Official U.S. Government Issues.—U.S. naval vessels and government activities on official distribution lists will receive Changes automatically upon publication. Government

activities not on the distribution lists should submit requests to the U.S. Naval Oceanographic Office, Washington, D.C., 20390 or to one of the Distribution Offices.

Mail orders from the Pacific Ocean area or west of the Mississippi River, except the Gulf of Mexico and the Canal Zone, should be sent to:

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H. O. 56—Change 12 XI

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LIST OF EFFECTIVE PAGES

H. O. Pub. No. 56—Second Edition, 1952
Change No. 12

This list supersedes any previous list. If two or more Changes are to be applied at one time, only the latest list should be used.

EXPLANATION

- 19 Original book page. Only odd-numbered pages are listed; their reverse sides are taken for granted unless otherwise noted.
- 19-3 Change page from Change No. 3. It replaces previously effective page 19.
- 20a-3 Additional book page included in Change No. 3. Pages 20b, 20c, etc., if included, are inserted in alphabetical order.

PAGES REQUIRED IN COMPLETE BOOK

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III-12 (Rev. Blank)	IX-12 (Rev. Blank)	XV-12 (Rev. Blank)
V-12	XI-12 (Rev. Blank)	XVII-Discard

Continued on reverse side

LIST OF EFFECTIVE CHANGES

This list supersedes any previous list. The effective pages of each listed Change must be applied to bring this publication up to date. Previous Changes not listed are no longer effective.

Changes 5 and 8 are canceled by this change.

Change No. 9, corrected through Notice to Mariners 20 of 15 May 1965
Change No. 10, corrected through Notice to Mariners 8 of 25 Feb. 1967
Change No. 11, corrected through Notice to Mariners 17 of 27 Apr. 1968
Change No. 12, corrected through Notice to Mariners 12 of 22 Mar. 1969

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Pages 7 and 431 have been discarded by previous change.

THE SHORT CORRECTION SYSTEM

Although Change pages replacing obsolete pages represent the ideal correction system for loose-leaf books, the Short Correction system is used as a reasonable alternative when corrections are too small to justify replacing an entire page.

Short Corrections are intended to be kept intact in the front of the book for ready reference as needed. The previous option of cutting apart and pasting Short Corrections to affected pages has been discontinued in the interest of simplicity. Previous Short Corrections that remain effective are repeated in subsequent Changes, and both old and new corrections for any given page are grouped together for easy reference. Pages affected by Short Corrections that are new with this Change are listed below. It is recommended that the top of each affected book page be marked "See Short Corrections" as a reminder that a Short Correction applies.

Short Corrections are preceded by a code group which shows the applicable page number, column, line number, and first word of line affected. Unless otherwise indicated each Short Correction replaces the entire line or lines designated. Exceptions are self-explanatory.

Example: 429-L-10 (Island). The Short Correction applies to Page 429, left column, line 10. "Island", the first word of line 10, serves as a check on the line count.

Short Corrections, if any, will appear in the next change.

CHAPTER 1

GENERAL REMARKS—BUOYAGE—SIGNALS—PILOTAGE—REGULATIONS—WINDS AND WEATHER—CURRENTS—TIDES—ROUTES

1-1 Plan.—This publication describes the shores of the Aegean Sea, together with its numerous islands, between Cape Matapan (Tainaron) on the west and Cape Alupo (Kara Burun) on the east. The islands of Crete (Kriti), Kaso (Caso), Saria, Scarpanto, and Rhodes (Rodi), forming the southern limit of the Aegean Sea, are described in Pub. No. 55, The Mediterranean, Volume IV.

1-2 GENERAL REMARKS—AEGEAN SEA.—The Aegean Sea, so named by the ancients, is bounded on the western and northern sides by the coast of Greece and on the eastern side by the coast of Turkey, and has numerous islands, commonly known as the Grecian Archipelago.

The islands are divided into two principal groups, the Cyclades and the Sporadhes. The Cyclades, so named from their encircling the island of Delos, the sacred island of the ancient Greeks, are located in the middle and western parts of the southern half of the sea. The Sporadhes, which derive their name from the word meaning sown or scattered, are located mainly on the eastern side of the sea; the southeastern part of this group is known as the Dodecanese. The islands lying in the northwestern part of the sea in a position northward of Euboea Island are known as the Northern Sporades.

All the islands are high. Many are of volcanic origin; others are composed of white marble, of which the Parian from Paros is often mentioned by ancient writers. Some are fertile and picturesque, while others, mostly the smaller ones, are a mass of rocks and lack vegetation. Their products consist principally of wine, olives, figs, tobacco,

raisins, and fruit, especially lemons and oranges. Sponges are found in the surrounding waters.

1-3 GREECE occupies the southern part of the Balkans stretching down into the Mediterranean, with the Ionian Sea on the west and the Aegean Sea on the east. On the northwest lies Albania, on the north Yugoslavia and Bulgaria, and on the north-east Turkey. The total area of the country is 50,147 square miles of which the islands account for 8,819 square miles. Greece can be divided into three physiographic units: (1) the mainland, including the Macedonian and Thracian coastland along the northern shore of the Aegean Sea; (2) the Peloponnisos, linked to the mainland by the narrow Isthmus of Corinth, now cut by a sea level canal; (3) insular Greece, comprising the scattered islands in the Aegean Sea and Ionian Sea.

The Dodecanese Islands (Dhodhekanisos) were ceded by Italy to Greece as a result of the peace treaty signed in Paris on 10 February 1947, and ratified on 15 September 1947.

In 1961, the population of the Dodecanese Islands was 122,346.

Crete, the largest Greek island, has an area of 3,234 square miles, and a population of about 482,021.

The high rugged Pindus Mountains (Pindhos Oros) of the mainland form the backbone of the country, dividing it into more or less isolated eastern and western parts. The narrow eastern extension of Greece along the northern shore of the Aegean Sea consists of a narrow coastal plain that rises inland to meet a broader belt of high moun-

tains, which forms the boundary between Greece and Bulgaria. Large rivers, the Maritza (Evros), Nestos (Mesta), Struma (Strimon), and Vardar (Axios), flowing southward into the Aegean Sea, separate the mountains into segments; the broad valleys of these rivers are continuous with the coastal lowlands. The natural unity of this section and its isolation from the remainder of Greece is exemplified in the rivalry of Thessaloniki with Athens, the capital and largest city of Greece.

The northeastern mainland east of the Pindus Mountains and south of the Vardar Valley is an area of rugged mountains, isolated basins, and broad valleys. Where the bedrock is limestone, the basins of interior drainage may contain swamps and lakes. The plains of Thessaly (Thessalia) to the south, surrounded by mountains, are the most extensive flat lands in Greece. The southeastern part of the mainland is a complex group of small isolated basins, plains, and discontinuous mountains generally trending at right angles to the central Pindus Range. Many of the small basins and plains are open toward the sea, but separated from one another by mountainous terrain so that the sea has been the traditional means of communication. The mainland west of the Pindus Range is a region of low, rounded mountainous ridges trending roughly parallel with the coast; the northern part of this country is closely allied to the Albanian part of Valona and the southern part to the Gulf of Arta (Amvrakikos Kolpos).

The Peloponnisos is an irregular mountainous region with rugged precipitous coasts; lowlands along the coast are limited to the west and north. The southeast-trending ranges form rocky fingerlike peninsulas on the south side, and the gulfs formed between them have small plains at their heads. Small closed basins are located in the limestone regions of the interior.

Greece has few rivers, and only several

of them have a perennial flow. The majority are short, draining from the mountains through deep and narrow valleys to the sea. They are in flood during the rainy season (October to May) and may entirely cease to flow during periods of drought. In general the rivers have small lowlands near their mouths, which are obstructed; only a few will admit boats.

1-4 Government.—Greece is a kingdom. The capital is Athens (Athinai).

Population.—According to the 1961 census, the population of Greece, excluding the Dodecanese Islands and Crete, was about 8,388,553. Apart from Greek, the only foreign languages now understood on Greek soil by considerable numbers of people are English, French and Italian.

1-5 Currency, weights, and measures.—The Greek monetary unit is the drachma of 100 lepta. In 1954, a new issue of notes and coins was placed in circulation, one new drachma being equal to 1,000 old drachmai. The rate of exchange is 30 drachmai to the U.S.A. one dollar. The notes are of the value of 10, 20, 50, 100, 500 and 1,000 drachmai, and the coins of the value of 5, 10, 20 and 50 lepta and 1, 2 and 5 drachmai.

The metric system is in use in Greek customhouses and official publications, but is not compulsory in everyday transactions. Some of the old units are as follows:

1 stremma (land measurement)=0.2471 acre.

1 oke=400 drams=2.832 lbs.

1 kantar=44 okes=124.608 lbs.

1 pik=27 inches.

2,128 Great Venetian lbs=1 long ton.

1-6 Industry and products.—Greece is mainly an agricultural country. Only one-fifth of the total area is under cultivation. Most of the forest land is owned by the state, and reforestation is going on. The chief agricultural products are wheat, rye, barley, oats, corn, tobacco, olives, grapes, lemons, oranges, mandarins, apples, pears, figs, and nuts.

The country has a great variety of mineral deposits. The area around Lavrion,

Thessalia, Euboea Island, the Aegean Islands, and other parts of Greece yield a large output of ores and earths. Some of the principal mineral resources are magnesite, pyrite, barite, lignite, chromite, bauxite, manganese, zinc, and iron.

Manufacturing is making considerable progress. The leading products are textiles, chemicals, cement, glass, footwear, and carpets.

The merchant marine has increased considerably in recent years.

1-7 Communications.—The railroad system on the Greek mainland is linked with the European railroad system. Regular sea and air communication is maintained with other countries.

The standard time of Greece is that of the meridian of 30° E., or 2 hours fast of Greenwich civil time.

1-8 TURKEY is situated partly in Europe and partly in Asia Minor. It is bounded on the west by the Aegean Sea and Greece, on the north by Bulgaria, the Black Sea, and the Union of Soviet Socialist Republics, on the east by the Union of Soviet Socialist Republics and Iran, and on the south by Iraq, Syria, and the Mediterranean Sea. The total area is estimated at 296,185 square miles; this figure includes the 2,010 square miles (estimated) of the Hatay area around Iskenderun (Alexandretta), ceded by the French in 1939.

Turkey in Europe and Turkey in Asia are essentially different types of physiographic areas. The former, less than one-thirtieth the size of the latter, is primarily a low plain bordered by two low mountain ranges. Turkey in Asia is primarily a high plateau surrounded by mountains, with other mountains rising here and there on the plateau and also making up the eastern section of the country. The lowlands are restricted to narrow coastal plains that skirt a part of the extensive coast line; the valleys of a few

rivers extend through these lowland areas inland some 50 to 75 miles. Aside from the mountain torrents draining the outer slopes of the mountains along the coast, the rivers must break through mountain gorges to the sea or else flow inland to form marshes or lakes on the central plateau.

The Aegean coast, which is the only part of Turkey covered in this volume, is very rugged and broken with deep indentations and sharp promontories. For the most part they are high and rocky but are interspersed with sandy or rocky beaches. Instead of a coastal plain there are the deltaic plains and narrow valleys of the streams. The numerous indentations of the coast provide frequent harbors, the protection of which is made complete by the countless islands, large and small, which lie along this coast. The islands themselves also have many good harbors. Like the mainland, these islands have mostly bold, rocky coasts with high, jutting promontories.

1-9 Government.—Turkey is a Republic with its capital at Ankara. The legislative power is vested in the Grand National Assembly; executive power in the President of the Republic and Council of Ministers; and judicial power in independent courts. The President is elected by the Grand National Assembly for a 7-year term and is not eligible for re-election.

1-10 Population.—The total population in 1967 was about 33,104,000. The peasants form 88 percent of the total, and those residing in towns and cities 12 percent. The Turks constitute about 90% of the population; the Kurds come next and then the Arabs. Although there are differences in the Turkish dialects spoken in various parts, all are mutually intelligible. Kurdish is spoken in the southeast, and some Circassian in the Caucasus. About 7 million Turks can speak a foreign language. Apart from Turkish, French is the current commercial language. Greek is much spoken and English is gen-

erally understood in the textile trade, but not in other branches of commerce.

1-11 Currency, weights, and measures.

—The legal monetary unit is the piastre. The Turkish pound (£T) is divided into 100 piastres (kurus), and each piastre is equal to 40 paras. The piastre pieces, as well as the half piastre (20 paras) and quarter piastre (10 paras) pieces, are of nickel. Silver coins are of 25 and 50 piastres, and gold coins are of $\frac{1}{4}$, $\frac{1}{2}$, 1, $2\frac{1}{2}$, and 5 £T. The only money in general circulation, apart from a $2\frac{1}{2}$ kurus brass coin and coins for 1, 5, 10, 25, 50 and 100 piastres, are notes of the Central Bank. The Turkish gold lira is worth 3,390 kurus.

The metric system of weights and measures was officially adopted on January 1, 1934.

1-12 Industry and products.—Agriculture is the chief industry in Turkey. Products raised are tobacco, grains, cotton, nuts, and fruits of almost all varieties. About 20 million acres are in forests. The country has large mineral resources, not fully developed. Chrome, oil, coal, lignite, and iron ore constitute the main minerals mined; some quantities of copper, manganese, lead, and sulfur are also available.

Communications.—The railroad lines, mostly owned by the government, have a length of 4,847 miles. In 1967 Turkey had about 37,100 miles of highways. All principal towns in Turkey are served by commercial aircraft.

The standard time of Turkey is that of the meridian of 30° E., or 2 hours fast of Greenwich civil time.

1-13 Holidays.—The following holidays are observed in Turkey: New Years, January 1; Opening day of Assembly, January 6; National Sovereignty Day, April 23; Spring

Day, May 1; Youth Day, May 19; Seker Bayrami, date varies; Kurban Bayrami, date varies; Victory Day, August 30; Proclamation of Republic, October 29.

1-14 This section has been deleted.

1-15 This section has been deleted.

1-16 This section has been deleted.

1-17 Lights—Caution.—Within the Mediterranean Sea all lights are being reexhibited so far as possible with normal peacetime characteristics. However, vessels are warned that during the transition period lights may be either exhibited, extinguished, or changed without prior notice.

1-18 Wrecks—Caution.—Numerous wrecks, in addition to those described, exist in the waters of the area described by this publication. For information regarding these wrecks and the lights and buoys marking them, consult the latest best-scale charts of the area concerned.

1-19 BUOYAGE—Turkish.—Starboard hand buoys are conical, painted red, and sometimes surmounted by a spherical top mark.

Port hand buoys are truncated conical, painted black, and sometimes surmounted by a cylindrical top mark.

Spherical buoys are placed at each end of a central danger. The buoy marking the outer end has a diamond top mark, and the buoy marking the inner end has a triangular top mark. If the central danger is of a certain length, its sides are also marked respectively by starboard hand and port hand buoys.

Mooring buoys are cylindrical, red, and numbered.

Telegraph cable buoys are black, and painted in white is the word "Telegraph" in Turkish.

Wreck buoys are green, and painted in white is the word "Wreck" in Turkish.

Buoys marking mine fields are barrel buoys, painted in red and white bands.

Fixed beacons on the land or on isolated dangers have top marks of various shapes and colors.

Caution.—The Turkish Government has accepted in principle the new International Uniform System of Buoyage, but it is probable that in all Turkish waters the complete changeover from the old system (above) may take considerable time. The latest information available is that the lateral system is being applied.

Greek.—The two following buoyage systems are in use in Greek waters. The old system is gradually being replaced by the new system, but both may be encountered for some time to come.

Old system: Conical, can, barrel-shaped and spherical buoys are used indiscriminately. Those to be left on the starboard hand entering are painted black, and if lighted are conical and exhibit a green light. Those to be left on the port hand are painted red, and if lighted are conical and exhibit a red light.

New system: Marks to be left on the starboard hand when entering are painted black, and if lighted exhibit a green light. They consist of can buoys with cylindrical topmarks or surmounted by a tripod with a lantern at its apex.

Marks to be left on the port hand when entering are painted red, and if lighted exhibit a red light. They consist of can buoys with a cone point up as topmark or surmounted by a tripod with a lantern at its apex.

Spar buoys or pillar buoys, with or without lights and of the appropriate color, are also used on either hand.

Isolated dangers are marked by conical buoys painted in black and red horizontal bands with a red spherical topmark.

The bifurcation of a channel is marked by a conical buoy painted in black and white horizontal bands with a black diamond topmark. The junction of two channels is marked by a conical buoy painted in red and white horizontal bands with two red cones, points together, as topmark.

A danger in the fairway to be left on the starboard hand when proceeding inward and on the port hand when proceeding outward is marked by a spherical buoy painted in black and white horizontal bands.

A danger in the fairway to be left on the port hand when proceeding inward, and on the starboard hand when proceeding outward, is marked by a spherical buoy painted in red and white horizontal bands.

A wreck is marked by a green conical buoy. The entrance of a channel is considered to be at its seaward end. Where doubt may exist as to which is the seaward end of a channel, in those cases where the direction of the channel is more or less north and south the entrance is considered to be at the northern end. In those cases where the direction of the channel is more or less east and west, the entrance is considered to be at the eastern end.

1-20 UNITED STATES, LOCAL, AND FOREIGN DISTRESS AND EMERGENCY SIGNALS.—The United States distress and emergency signals and other local and foreign information on dangers published in Notice to Mariners No. 1 of each year are no longer repeated in this volume.

1-21 This section has been deleted.

1-22 This section has been deleted.

1-23 Signals to be made by vessels inconvenienced by searchlights.—In the event of the navigation of a vessel being inconvenienced by the glare from searchlights near a port, she should make the International Code signal "ZO" (Morse code) by lamp and by whistle, siren, or foghorn.

Both the light and sound signals should be employed, whenever possible, and should be repeated until the inconvenience is removed.

Only real urgency should necessitate the use of this signal, as, unless the vessel is actually in the rays of the searchlight, it is not possible for the operator to know which projector is affected.

This signal is designed to assist mariners; no liability whatever will be admitted.

1-24 This section has been deleted.

1-25 This section has been deleted.

1-26 This section has been deleted.

1-27 This section has been deleted.

1-28 British submarines.—British vessels accompanying submarines, which may be submerged, fly the International Code group "HP" or "OIY" to denote that submarines are in the vicinity. Other vessels are cautioned to navigate so as to give a wide berth to any such vessel, but if from any cause it is necessary to approach her, vessels should proceed at slow speed until warning of the danger zone is given by flags, semaphore, or megaphone, etc., a good lookout being kept meanwhile for submarines, whose presence may be indicated only by their periscopes or snorkels showing above water.

A submarine submerged at too great a depth to show her periscope may sometimes indicate her position by releasing a smoke

candle, which gives off a considerable volume of smoke on reaching the surface. Her position may also be indicated by red and white or red and yellow floats that are towed on the surface close astern.

It must not be inferred that submarines exercise only when accompanied by escorting vessels. Under certain circumstances warnings may be broadcast that submarines are exercising in specified areas.

Greek submarines.—A vessel flying "HP" or "OIY" of the International Code of Signals indicates that a submarine is exercising in the vicinity. Submarines use the following smoke signals when surfacing, indicating that vessels should keep clear and not stop their engines:

1. One red smoke candle, probably repeated, indicates I am surfacing in emergency.

2. Two white or yellow smoke candles at 3 minute intervals indicates I intend to surface; my position is as indicated.

Submarines unable to surface may release any of the following.

- (a) A spherical orange indicator buoy marked with their name.

- (b) Yellow or white smoke candles.

- (c) An oil slick release.

Vessels should immediately report to the Greek Naval authorities the sighting of any of these signals, should buoy the position, and should remain, keeping a careful watch for survivors, at a distance of about 200 yards from the position of the submarine.

1-29 Submarine cables—Caution—Danger.—Submarine cables may be laid within

1-22 This section has been deleted.

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Both the light and sound signals should be employed, whenever possible, and should be repeated until the inconvenience is removed.

Only real urgency should necessitate the use of this signal, as, unless the vessel is actually in the rays of the searchlight, it is not possible for the operator to know which projector is affected.

This signal is designed to assist mariners; no liability whatever will be admitted.

1-24 This section has been deleted.

1-25 This section has been deleted.

1-26 United States submarines—Identification light.—In addition to their usual navigation lights, United States submarines may display an amber colored rotating light producing 90 flashes a minute, visible all around the horizon at a distance of at least 3 miles, the light to be located approximately 6 feet above the masthead light.

1-27 United States submarine emergency identification signals.—U.S. submarines are equipped with signal ejectors which fire an emergency signal into the air to a height of about 300 feet. The signal there floats

downward suspended from a small parachute and gives illumination for about 30 seconds.

1. The following are the emergency signals used:

(a) *Black or green*.—Indicates torpedo has been fired. Will be used to simulate torpedo firing on special exercises such as convoy exercises.

(b) *Yellow*.—Indicates that submarine is about to come to periscope depth from below periscope depth. Surface craft terminate antisubmarine counter attacks and clear vicinity of submarine. Do not stop propellers.

(c) *Red*.—Indicates an emergency condition within the submarine and she will surface immediately, if possible. Surface vessels clear the area and stand by to give assistance after the submarine has surfaced. In case of repeated red signals, or if the submarine fails to surface within a reasonable time, she may be assumed to be disabled. Buoy the location, look for submarine marker buoy, and attempt to establish sonar communications. Advise naval authorities.

2. Submarines are also equipped with marker buoys which are about 3 feet in diameter, and painted international orange. The buoy is a messenger buoy with a wire cable to the submarine; this cable acts as a downhaul line for a rescue chamber. The buoy may be accompanied by an oil slick release to attract attention. A submarine on

the bottom and in distress unable to surface will, if possible, release this buoy. An object of this description which is sighted on the surface of the water should be investigated and naval authorities advised.

3. Transmission of the international distress signal "SOS" will be made on the submarine's sonar gear either independently or in conjunction with the red emergency signal set forth in (c) above, as conditions permit.

4. Submarines may employ any or all of the following additional means to attract attention and indicate their position while submerged:

- (a) Release of dye marker.
- (b) Release of air bubble.
- (c) Ejection of oil.
- (d) Pounding on the hull.

1-28 British submarines.—British vessels accompanying submarines, which may be submerged, fly the International Code group "HP" or "OIY" to denote that submarines are in the vicinity. Other vessels are cautioned to navigate so as to give a wide berth to any such vessel, but if from any cause it is necessary to approach her, vessels should proceed at slow speed until warning of the danger zone is given by flags, semaphore, or megaphone, etc., a good lookout being kept meanwhile for submarines, whose presence may be indicated only by their periscopes or snorkels showing above water.

A submarine submerged at too great a depth to show her periscope may sometimes indicate her position by releasing a smoke

candle, which gives off a considerable volume of smoke on reaching the surface. Her position may also be indicated by red and white or red and yellow floats that are towed on the surface close astern.

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- (a) A spherical orange indicator buoy marked with their name.
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Vessels should immediately report to the Greek Naval authorities the sighting of any of these signals, should buoy the position, and should remain, keeping a careful watch for survivors, at a distance of about 200 yards from the position of the submarine.

1-29 Submarine cables—Caution—Danger.—Submarine cables may be laid within

the area covered by this volume. In view of the serious consequences resulting from damaged submarine cables, vessels should take special care to avoid anchoring or fishing in cable areas.

Vessels fouling a submarine cable should attempt to clear without damaging the cable. Anchors or gear that cannot be cleared should be slipped and abandoned, and no attempt should be made to cut a submarine cable. Certain cables carry high voltages, and serious injury or loss of life may result from attempting to cut a submarine cable.

The owners of vessels who are able to prove that they have sacrificed an anchor, a net, or other fishing gear, in order not to damage a submarine cable, may be compensated by the owner of the cable.

In order to establish a right to such compensation it is necessary, if possible, immediately after the accident, to draw up a report confirming the loss, supported by the testimony of the men in charge of the equipment; and the master of the vessel, within 24 hours after his arrival at the first port of return, or of call, to make his report to competent authorities. They will notify the consular authorities of the country of the owner of the cable.

1-30 PILOTAGE—Greece.—Pilotage is compulsory in Greek ports having a pilot station. Greek coastwise vessels, Greek naval vessels, and naval vessels of foreign countries that extend free pilotage to Greek naval vessels are exempt from the payment of pilotage. The pilots, designated by the Government and under the jurisdiction of the Navy, serve only in an advisory capacity.

Pilot vessels usually have a green hull with a white band about 1.5 feet in width.

On the stern and on both sides of the bow is the Greek word ΠΛΟΗΓΙΣ (meaning pilot vessel), number, and below the name of the station. When the pilot vessel is a sailing vessel, she has on both sides of the sail the letter "P" in black if the sail is white, or in white if the sail is of some other color. Pilot vessels under way fly at their stern the national flag and at their mast or jack staff the flag of the pilot service. At night they carry the lights prescribed under the Rules to Prevent Collisions of Vessels.

To call a pilot, a vessel should make one of the signals laid down in the International Code of Signals. The port authority must be notified by the captain or agent of the exact hour of sailing, and the notification must be given at least 2 hours prior to the time of sailing in the case of vessels lying in the port, and 10 hours prior in case of vessels lying outside the port. Vessels lying in the Gulf of Athens must give such notification 24 hours in advance.

1-31 REGULATIONS—Entry into Turkish waters.—Vessels are warned against entering Turkish territorial waters except for the purpose of calling at a port, when they should keep closely to the usual navigational route giving access to the port.

A copy of port regulations should be obtained from local port authorities. Turkish exchange laws and customs regulations are rigidly enforced.

Regulations in regard to prohibited landing are given in section 10-71.

1-32 QUARANTINE.—It has been reported that in Turkey pratique is required at each port, even though vessel has just come from another Turkish port.

1-33 WINDS AND WEATHER¹—General remarks.—This summary describes the weather and climate of the Aegean Sea, that arm of the Mediterranean lying between Greece and Turkey and having numerous islands, commonly known as the Grecian Archipelago. The adjacent land area of Greece, on the north and west sides of the Aegean Sea, is mountainous with peaks generally exceeding 4,000 feet in elevation and with many running up to over 7,000 feet. Mt. Olympus, about halfway between Volos and Thessaloniki, is the highest mountain, reaching 9,551 feet above sea level. The islands of the Aegean Sea are similarly rugged with some mountains 3,000 and 4,000 feet high. On the east, the coast of Turkey is hilly but not as rugged as the Grecian coast. The coast lines of Greece and Turkey are irregular in the extreme, being composed of numerous gulfs, peninsulas, and islands of every description.

Probably the most unfavorable feature of the climate is the long, hot summer. The sea area is not one of excessive storminess in winter as gales of force 8 or higher (Beaufort scale) are seldom recorded in more than 5 percent of the observations. Light or moderate squalls are noted in about 10 percent of the winter observations and in only 2 percent of the summer reports. Heavy squalls appear to be unknown.

1-34 Pressure controls.—Many of the winter gales are associated with depressions moving east-northeastward past southern Greece from Libya. Some gales also occur with disturbances moving from Italy east-southeastward across the Grecian mainland. The strongest winds are from the north or northeast when there is a LOW over the Mediterranean and a HIGH over the Balkans and southern Russia. Strong winds and

gales from the south, which may precede the passage of a LOW, are not as frequent or severe as the northerly winds. Gales appear to be more numerous in the eastern and northern parts of the Aegean Sea than in the southern and western portions, although the frequency with which they are observed from island to island varies greatly, depending to a large extent upon whether the reporting weather station is on the leeward or windward side of an island.

In summer the behavior of disturbances differs in three important respects from the storms of the winter season: (1) A more northerly route is pursued so that most of the summer LOWS pass well to the north over the continent; (2) the frequency and strength of summer depressions is greatly reduced, so that they rarely cause an interruption of the prevailing northerly winds and the local sea and land breezes; and (3) in summer few disturbances move as far east as Greece and even fewer reach the Aegean Sea.

1-35 Winds—General.—The prevailing wind flow in the Aegean Sea is from the northerly quadrant at all seasons, but most persistently so in the summer. There are, however, numerous marked local variations from this rule due largely to topography and, in summer, to land and sea breeze effects.

1-36 Meltem or Etesian winds.—The summer northerly winds of the Aegean Sea are referred to by the Turkish word "Meltem" or by the old Greek term "Etesian." These winds result from the substantial pressure gradient between the permanent deep summer heat LOW over the Red Sea and the area of relatively high pressure over the continent to the northwest. They blow steadily with moderate velocity over the islands and open Aegean Sea, and are most persistent in the southeastern Aegean Sea,

¹Prepared by the U. S. Weather Bureau for compilations of ships' weather observations on file in the Marine Section, and from other sources.

where, with the assistance of favorable land forms, they reach the exceptional frequency of 80 percent or more in July and August. These winds are often a great help in ameliorating the summer heat of places exposed to them. Occasionally they reach velocities of force 5 to 7 on the Beaufort scale and at Athens may raise suffocating clouds of dust.

1-37 The Doro Channel winds.—In Doro Channel, between Euboea and Andros Islands, the Meltem blows with its maximum force. Here strong north to northeast winds hardly cease during the summer and they often reach gale force. At other seasons the winds from these directions are also strongest. This phenomenon is caused by the land form, the two bordering islands forming a barrier to the north and northeast winds and thus causing a very strong flow of air through the narrow gap lying between them. A parallel can be found in the rapid flow of water through a break in a dam. This wind is very local and may occur when winds only a few miles from the channel are practically nonexistent.

1-38 Local land and sea breezes.—Along the coasts of the mainland and even on the larger and more rugged islands the Meltem winds are frequently interrupted and in some cases completely eliminated by local sea and land breezes. (See climatic tables in appendix II.) The sea breeze, called the Imbat, generally begins about 10 a. m. and continues until sunset in the period May–September. At 11 p. m. the land breeze often begins, falling to a calm toward dawn. The sea breezes may become strong, but the land breezes are always light.

At Kythera Island, off the southern coast of Greece, the sea breeze blows as a west wind 58 percent of the time in June, but by August, when sea temperatures are highest and the sea breeze therefore weakest because of the lack of marked temperature contrasts

between land and water, the Meltem has become the prevailing wind, occurring in 53 percent of the observations.

On the southern coast of Greece, at Githion, the Meltem is dissipated by the mountain mass to the north, and south and southwest sea breezes are predominant. At Athens the Meltem is only occasionally felt.

Lamia, Greece, is situated at the head of an arm of the sea which lies to the east-southeast. Up this gulf weak sea breezes wend their way. Calms are noted in about 40 percent of the observations. At Volos the Meltem is largely displaced by a south sea breeze blowing in from the gulf on which the city is situated.

On the northern coast of the Aegean Sea, east is the most common wind direction in summer, while at Izmir, Turkey, the sea breeze from the west is, until August, the wind most often observed.

1-39 Winds of the winter season.—In winter the winds are far more changeable because of the passage of moving HIGHS and LOWS. In the southern Aegean Sea, winds from the southerly and northerly quadrants are almost equally frequent. As in summer, calms are rare. The southerly winds blow fresh to strong ahead of a disturbance approaching from the west, and during the last few hours are often accompanied by rain. The winds tend to be more southeast near the Turkish coast and southwest near the Grecian shore. As the center of the storm passes the wind veers successively through southwest, west, and northwest with showers and squalls, but a steady strong wind seldom blows from the westerly quarter. Behind a disturbance, with the advent of the cold polar air from the HIGH to the northward over the continent, a strong or gale wind from the north or northeast may ensue, bringing showers of rain, sleet, or even snow for a time. At night these

storms are dangerous on the windward sides of the islands because of low visibility and heavy seas. Under such circumstances the lee or southern side of the islands will be much safer for shipping.

If no depression lies south of the HIGH entering from the continent to the north, skies will be clear with strong north and northeast winds.

Over the northern Aegean Sea southerly winds are infrequent during the winter months, and north to northeast winds hold 60 percent of the time. The northerly winds are common because the centers of most of the depressions pass over the central or southern Aegean Sea, being forced southward by the obstructing effect of the cap of cold air lying over the continent to the north.

During overcast weather an impending strong wind or gale is often indicated by the sudden detachment of the low clouds from the summits of the islands or coastal mountains.

1-40 White squalls.—In the Grecian Archipelago there are occasional so-called "white squalls" during the Meltem (northerly) winds of summer. Since the squalls occur during clear weather, the disturbed surface of the sea appears white in the sunlight. This squall wind descends to the sea from the highlands on the lee side of islands.

1-41 Fog.—Fog is not an important hazard to navigation anywhere in the Aegean Sea. Near the Turkish coast it averages less than a day per year. In the western Aegean Sea near the Grecian coast fog may occur in any month, although nearly everywhere it is more common in winter. Nowhere, however, is it experienced on an average of more than 16 days per year except near the large cities of Athens and Thessaloniki. The smoky air about large cities is especially favorable for the condensation of moisture during the early morning.

Even when the fog is dense at these cities, it is often low and does not extend far seaward. Athens has 154 days a year with fog, with dense fog on about 38 of these days; at Thessaloniki the figures are 54 and 10 days, respectively. At Athens the monthly frequency of low fog varies from 9 days in July and August to 12 to 15 days between October and May. Thessaloniki has an average of 3 to 4 days monthly during a large part of the year, rising to 9 days in December and to 7 in January.

1-42 Haze.—Haze is observed in about 3 percent of the Greenwich Meridian Noon observations over the sea area. It is recorded more often in spring and summer than at other seasons.

Exceptional visibility.—Exceptional visibility is noted in about 10 percent of the ships' observations over the Aegean Sea, with apparently no definite seasonal variation in frequency.

1-43 Mirage.—Inferior mirages are common along coastal waters of the Aegean Sea in the summer. They occur when the surface air over water is at a higher temperature than that of the air immediately above. They cause the horizon to appear depressed so that distant low-lying objects are invisible. Nearer objects appear closer and clearer than usual.

The superior mirage is occasionally observed during the winter and spring. It is caused by a drop in temperature in the lower layer of a warm air current as it passes over a cooler water surface. In such a mirage objects appear raised above their usual positions.

1-44 Cloudiness.—Cloud cover is relatively light over the Aegean area, and the amount varies distinctly with the seasons, being heaviest during the winter, which is also the season of greatest precipitation. Throughout the region there are a daily

maximum in the afternoon and a minimum in the morning or evening. Observations taken at 1400 average about one-tenth heavier cloud cover than those taken at 0800.

During the winter the sky is on the average about one-half covered with little variation in the 6 months November to April. In bad weather, or before northerly gales, the mountains are shrouded by dense cloud masses, and in the north at Thessaloniki continuous heavy clouds on the mountains are typical of winter.

In the summer the sky is seldom overcast and is often cloudless for days at a time, particularly in the southern part of the area. In the months of July and August the average cloudiness is about two-tenths in the north and one-tenth or less in the south. In addition to this decrease of cloudiness from north to south there is the decrease from west to east that is typical of most of southwestern Asia.

1-45 Rainfall.—The Aegean Sea possesses the typical Mediterranean climate, that is, the rainy season is in the winter and the dry in the summer. Actually the early winter is rainiest with many stations having their maximum fall in December, as the contrast between the warm moist air forming over the open Mediterranean Sea and the cold polar air overlying the continent to the north is greatest at this time of year. By February there is, in most places, a noticeable slackening of the rains. The period of least rain is in July and August when the southeastern Aegean Sea is mostly rainless, although on the west and north coasts the monthly fall is between a half inch and an inch even during the summer months.

In winter the rain amount is reversed with the southeastern Aegean Sea having the greatest falls. The mean is near $8\frac{1}{2}$ inches per month in December and January at the island of Samos. Yet only 2 to 3 inches

of rain falls per month at stations on the Grecian coast in the winter. The total annual amount of rainfall follows the pattern of the winter distribution, Samos having the greatest yearly fall of 40.46 inches during 4 years of record. Few places in Greece have over 20 inches of rain in a year, and over most sections of the water area the falls amount to around 20 inches per annum. Thira Island, located some distance north of Crete, has the least rainfall, 14.28 inches per year, while Athens is nearly as dry with 15.48 inches.

1-46 Number of rainy days.—Although rain is heaviest over the southeastern Aegean Sea, the number of rainy days there is less than on the Grecian coast, where only half as much rain is measured. The average is about 90 days a year with rain over eastern Greece, against 46 to 88 (usually 70 to 80) days over the eastern Aegean. This indicates more intense rains in the eastern than in the western Aegean Sea.

1-47 Maximum 24-hour rainfall.—The greatest 24-hour rainfall on record for the area of the Aegean Sea is 5.9 inches at Athens. Falls exceeding 3 inches in 24 hours are, however, not common, although they occur occasionally nearly everywhere. The least intense rains are found on the northern shore, where, at Kavalla, in 4 years of record, the maximum 1-day rain was only 1.74 inches.

Usually the most intense rains come during the rainy season, as one would expect, but in the northern half of the Aegean Sea there are occasional heavy rains even during the summer months. These are likely the result of thunderstorms which move out from the mainland of Greece. Twenty-four-hour falls as great as 3 to 4 inches have been recorded during the warmer season.

Diurnal variation.—Rain is most likely to occur in the afternoon in both winter and

summer over the mainland of Greece, but over the sea and on the islands it is more frequent at night or in the early morning. Rain seldom lasts all day, and it is exceptional to have a 3- or 4-day storm.

1-48 Rain-bearing winds.—In the northern and eastern Aegean Sea southwest to southeast are the most common rain-bearing winds, although the cold north winds of winter are sometimes accompanied by snow. At Athens, on the southwestern side of the Aegean Sea, the north and northeast winds bring rain nearly as often as those from the south and southwest. Rain does not often occur with wind directions other than those specified.

1-49 Snow.—From December to March precipitation, in the form of snow, may accompany the cold north and northeast winds behind the cold fronts of the winter depressions. The accumulation is not, however, large, and snow rarely lies on the ground for more than 3 or 4 days. Fourteen days is the longest period of continuous snow cover recorded. On the southern islands of the Aegean snow is noted, on the average, only on a day or two each year. There is never enough to accumulate.

1-50 Thunderstorms.—Thunderstorms occur mostly during the winter in the southern Aegean Sea, with practically no activity at the height of the dry season in the three summer months of June, July, and August. The southwestern portion of the Aegean Sea has comparatively few thunderstorms with only 12 days a year at Thira Island and at Githion, Greece. In the eastern Aegean Sea thunderstorms occur on 15 to 23 days a year, but at Mityleni (Lesvos) Island they are peculiarly infrequent with an average of only 5 days per annum during a 4-year record. Over the northern Aegean Sea some thunderstorm activity can be expected in the summer, usually on 1 or 2 days a month. Along

the northern shore, at Kavalla, the majority of these storms occur during the warmer half of the year, although thunder may still be expected in 1 or 2 months during the winter.

Northward from Githion, Greece, along the western shore of the Aegean Sea, thunderstorms become progressively less frequent in the various gulfs until at Lamia they are observed on an average of only 3 days a year. These few thunderstorms may, however, occur in any month of the year. Farther north a rapid increase in the number of summer storms occurs until at Thessaloniki thunder is heard on an average of 7 days in June and 28 days during the year. In that region storms are, however, rare from November to March. The infrequency of thunder in the northern Aegean regions in winter is accounted for by the fact that the centers of many of the depressions pass to the south at that season, and it is in the southern sector of a disturbance that thunderstorms usually occur.

1-51 Temperature.—In line with its Mediterranean climate the region of the Aegean Sea is one of mild winters and hot summers.

In the summer the islands in the Aegean Sea are somewhat cooler than the mainland by day, but, since the sea water temperature is between 75° and 80° at that season, temperatures are rather high both on the islands and over the water. Mean daily maximum temperatures are from 87° to 90° on the islands and readings of near 100° are occasionally observed. Syra (Siros) Island, in the southwestern Aegean Sea, has had a temperature as high as 104°. Thira Island, nearest the open Mediterranean, in the extreme southern Aegean, is the coolest place in the area of this summary with a mean maximum temperature of only 83° in July and August, and a mean temperature of 76° during the same months.

On most of the Grecian and Turkish mainland, adjacent to the Aegean Sea, summer temperatures average much the same as over the water, 81° to 82° , but the days are warmer and the nights cooler, by about 5° in each case; that is, the mean daily range of temperature over the land in summer averages near 23° , between 92° and 69° , compared with 13° , between 87° and 74° , on many of the islands in the Aegean. Temperatures of 107° to 113° (the latter reading at Lamia) have been reached over most of Greece and similarly high readings have been attained in western Turkey.

Although mean minimum temperatures at Izmir, Turkey, are much the same as those in Greece during the summer, surprisingly low readings are occasionally registered. For example, 39° has been reached in August, although at Lamia, Greece, where the mean minimum temperature is the same, it has been no lower than 54° during the same month.

In the winter the northern shore of the Aegean Sea is the coolest section. At Kavalla the mean temperature in January is 42° . On the more southern islands mean temperatures are 50° to 52° in January, while the adjacent mainland areas of lower Greece and western Turkey have an average of 46° . Izmir, Turkey, has the lowest temperature on record for a station adjacent to the Aegean Sea, 11° in February. At most mainland coastal stations on the Aegean shore of Greece 15° to 20° is the record minimum. On the islands in the Aegean Sea it never drops much below freezing. The lowest was 25° in January at Lemnos Island, in the northern portion of the sea. In the southern sector extreme minima are from 28° to 31° .

The mean daily range in temperature during the winter is considerably smaller than in summer by reason of the greater amount

of cloudiness. It averages 7° to 9° on the islands and about 13° on the coasts.

1-52 Sea water temperatures.—During the winter the water temperature at the surface of the Aegean Sea varies from near 54° in the north to about 60° in the south-east. Occasionally the water becomes unusually cold close to the north shore and there may be a skim of ice in some places. In summer the water temperature is generally in the middle 70's in the open sea, but it becomes as warm as 80° to 86° in inclosed bays and gulfs.

The surface heating of summer does not extend far down into the depths of the sea. In the western Aegean Sea the temperature at 50 fathoms is 55° to 56° in summer; from 100 fathoms to the bottom, however deep, it is always 54° to 55° at all seasons. In the eastern Aegean Sea the effect of surface heating is felt to 200 fathoms, but from there to the bottom the temperature is constant at 56° .

1-53 Relative humidity.—The relative humidity is uniformly highest in winter and lowest in summer over the area under consideration. The absolute humidity is, however, higher during the summer than in the winter. For the year the humidity averages near 70 percent over the sea and about 10 percent lower than this over the land. The annual variation is about 10 percent over the sea and 20 percent or more over the land. Humidities average nearly 80 percent at 0800 on winter mornings on both land and sea, and 65 to 70 percent at 1400. In other words, there is little difference in humidities between the land and sea in the winter, but in summer the situation is different. At Athens, which has lowest humidities in the Aegean region, the morning relative humidity averages 46 percent in July at 0800 and only 33 percent at 1400. Other land stations have only slightly higher

averages. But on all islands except Kythera off southern Greece the humidities average 15 to 20 percent higher than at Athens. Humidities as low as 5 percent have been observed at Athens in the summer, although in the winter the value seldom falls below 30 percent. A humidity of 100 percent was recorded but once between May and September at 0800, 1400, or 2100 (local time) at Athens during a period of 13 years. The 100 percent value is, however, frequently noted during winter storms.

At coastal points subject to both land and sea breezes the relative humidity is quite variable in summer. At 1400 during one August, the humidity at Izmir, Turkey, averaged 55 percent during sea breezes as compared with 31 percent in the absence of such winds.

1-54 CURRENTS.—The currents in the Aegean Sea are irregular in strength and direction. They set generally southward but are greatly influenced by the winds, especially in the western part. As a general rule, the currents are always stronger during and after northeasterly winds than those during winds from the southern quarter.

When the winds are from the northeast to east, the rapid current from the Dardanelles passes on both sides of the island of Lemnos and sets toward the western part of the archipelago and through Doro Channel with considerable velocity. It sets with great strength through the narrow channel between the islands of Andros and Tinos and through the wide channel between the islands of Mykonos and Nikaria, but has less strength in the channel between the islands of Mykonos and Tinos. On leaving these channels and entering the southwestern part of the Aegean Sea, the current loses its velocity, and between Cape Malea and Crete unites with the general westerly current,

which is also more or less affected by the force and direction of the wind.

Besides the usual southerly set, there are local or eddy currents; thus northward of the islands of Thasos and Samothraki the current has been observed to set strongly to the east; at the island of Tenedos, with a long continued southerly wind, the southerly current ceases for a time. In Izmir Körfezi, particularly during the summer, the strong sea breezes force the water toward the head of the gulf, causing at times a westerly set of $1\frac{1}{2}$ knots with the fall of the wind.

No exact law can be given with respect to these currents, especially in the southern part of the Aegean Sea and in the channels east and west of Crete. It sets almost continually to the southward, but it is at times irregular and depends, as elsewhere, much on the force and direction of the winds, both local and those at a distance when strong. Thus southerly gales, especially in autumn, when the water brought down by rivers is at its minimum, will entirely reverse the currents, causing a flow back to the northward and through the Dardanelles and Bosphorus into the Black Sea, instead of its usual direction out of that partly fresh-water basin. Southerly and southwesterly breezes will likewise cause an easterly current in the southern part of the sea, which, uniting with that from the Dardanelles, greatly increases the southerly current between the islands of Kaso and Crete and between Scarpanto and Rhodes.

The coast of Crete is subject to variable currents, being influenced greatly by local winds, but the descending currents from the Dardanelles and the encircling current from the coast of Egypt by Syria and the southern coast of Turkey unite in causing a predominating southerly current throughout the archipelago and a southwesterly current on the coast of Crete from $\frac{1}{2}$ to $1\frac{1}{2}$ knots.

These currents have been invariably found to be superficial, having only a depth of from 30 to 50 fathoms and decreasing in strength with the depth. The only rule that can be given as a caution to the navigator for the southern part of the Aegean Sea and for the channels eastward and westward of Crete is to allow for a current of 1 to $1\frac{1}{2}$ knots in the direction of the wind, when it amounts to a fresh or even a moderate breeze. When there are such currents in the offing and open channels, there will be, of course, inshore eddies.

1-55 TIDES.—The level of the water in the Aegean Sea, as in most parts of the Mediterranean Sea, is more influenced by the wind than the tide. In those places where the rise and fall of the tide is appreciable, it is regular, especially at springs. The spring rise varies from a few inches in some places to $2\frac{1}{2}$ feet at other places.

The tidal currents are very weak in the Aegean Sea, except in the channels between Evvoia Island and the Greek mainland. Rates of as much as 7 knots are experienced at springs in the narrow passage at Khalkis, and appreciable rates are found in other channels in this limited area.

1-56 REPAIRS—DRYDOCKS.—Underwater repairs can be undertaken in the following ports located within the limits of this publication: Piraeus, Salamis, and Syra.

Details of facilities are given in the descriptions of the various ports.

1-57 ROUTES.—In general the routes in the Mediterranean Sea, especially in the area covered by this volume, are as direct as safe navigation permits. The following recommendations, however, are given.

East-bound vessels from the Strait of Gibraltar steer to pass 10 miles north of Alboran Island; and then follow the African coast, giving the most projecting points a berth of 10 to 20 miles. Along this route the current generally sets to the eastward,

though a southerly or southeasterly current may be encountered. From 10 miles north of Cape Bougaroni steer for Galite Channel, and then pass 5 miles north of Cape Serrat, Fratelli Rocks, Ras Engela, Cani Rocks, Cape Bon, and Pantellaria Island. Then shape a course for the destination as direct as safe navigation permits.

West-bound vessels follow the east-bound routes in reverse except from abreast of Cabo de Gata, then proceed close along the Spanish coast so as to avoid the adverse current setting through the strait. Occasionally a west-going current may be experienced along this coast.

Vessels bound to Piraeus, Thessaloniki, Istanbul, Izmir, or any other port in the Aegean Sea should make Cape Matapan and pass through Elaphonisos Channel. After rounding Cape Malea, if bound to Piraeus, pass westward of the islet of Belo Pulo and east of Cape Zurva; then shape a course for the destination.

When a vessel is passing the islet of Belo Pulo in thick weather, caution is necessary, as the currents are often strong and the direction is uncertain.

If bound for Istanbul, proceed through Zea Channel and Doro Channel and around the western end of the island of Tenedos.

If bound to Izmir from Doro Channel, pass well northward of Psara Island on account of the current, or pass between it and Cape Ayios Nikolaos, the northwestern point of the island of Khios. Then pass northward of the island of Khios and the Peninsula of Kara Burnu into Izmir Körfezi.

Vessels bound to Izmir may also shape a course from Cape Malea for Siphnos Channel, guarding against the strong and uncertain currents when near the islet of Gerakunia and giving Cape Phillippo, the northern extremity of the island of Siphnos, a wide berth in order to avoid the sunken rock off it, and also to allow for the southwesterly current, which in light northerly winds sets toward it. After passing through

Siphnos Channel, steer for Mykonos Channel, passing between Aspro Islet, located off Syra Island, and Nata Islet. Then proceed through Mykonos Channel, which is $4\frac{1}{2}$ miles in width; the southwesterly current is not so strong here as that in Doro Channel. When through the Mykonos Channel, steer to pass southward of the island of Khios, through Khios Strait, and into İzmir Körfezi.

The navigation of the Aegean Sea, though easy, requires constant attention, and a place of shelter should always be kept in view, so that safety may be assured before dark in the event of an approaching gale; the weather here may become so thick that among the labyrinth of islands the land may hardly be seen in time to avoid it. In general, when bound up the Aegean Sea, if there is the least appearance of a gale from the northward, there should be no hesitation in seeking temporary shelter at the nearest anchorage, for the position of the vessel may become more critical as the weather gets worse.

A vessel may always anchor under the lee of an island with northerly winds, for though at times they blow with much violence, they never shift suddenly to the southward, and there is always a sufficient interval of moderate weather to permit leaving the anchorage. It is not the same, however, with southerly winds, which generally shift suddenly in a squall to the north or northeast and blow with violence.

A steamer, in case of necessity, anchoring on the northern side of an island or point of land, should be in such a position as will enable her to leave with ease and facility at any moment. As southerly winds increase in force gradually, there is generally time to seek the requisite shelter.

1-58 This section has been deleted.

CHAPTER 2

GREECE—CAPE MATAPAN TO THE GULF OF ATHENS

2-1 Warning—Navigation restrictions.

—Navigation off many sections of the Greek coasts and islands is prohibited unless special permission is obtained from local authorities. Routes through swept channels are also established in Greek waters.

The Greek Ministry of Foreign Affairs has announced that navigation is prohibited within 5 miles of the coast of Peloponnisos without special permission. This restriction does not apply to vessels on regularly scheduled itineraries.

With the exception of coastal vessels on predetermined schedules, all ships are prohibited to navigate within a distance of 5 miles from the coast of the Peloponnisos and adjacent islands. All sailing boats, motor vessels and small boats are also prohibited to touch at any port, bay or coast of the Peloponnisos and adjacent islands, with the exception of the following ports: Isthmia, Aiyina, Poros, Idhra, Spetsai, Navplion, Monemvasia, Voiatikos, Porto Kayio, Kalamai, Koroni, Navrinon, Katakolon, Kilini, Patrai, Aiyion, Korinthos. These last ports are declared ports of refuge where vessels may touch freely.

These restrictions are additional security measures imposed by the military but are not applicable if diplomatic clearance has been obtained.

2-2 GULF OF LAKONIKOS (KOLOKYTHIA) (*H. O. Chart 4100*), called Lakonikos Kolpos by the Greeks, is entered between Cape Matapan and Cape Santa Maria, 22

miles east-northeastward. The gulf extends 22 miles northward to its head, where the width is 8 miles. The depths are great, and off-lying dangers are nonexistent. The squalls that descend from the mountains on the western side of the gulf are dangerous for small craft. The principal port is that of Githion, located in the northwestern part of the gulf.

2-3 Aspect.—Mani Peninsula, terminating in Cape Matapan, forms the western side of the gulf. The most conspicuous summits of the mountains from north to south on this peninsula are Mount Taygetos (Taïyetos Oros), 7,897 feet high; Mount Mavro, 6,274 feet high; Mount Kubenova (Kouvenova), 4,827 feet high; Sanghia (Sangia) Mountains, 3,777 feet high; Mount Miniatika (Maniatika), 3,530 feet high; and Mount Kakovuni, 3,000 feet high. Saint Elias (Ayios Ilias), the highest point of Mount Taygetos, is nearly always covered with snow except during the summer months. In clear weather these mountains may be sighted from a great distance; however Mount Taygetos is almost always enveloped in clouds. During southeasterly winds the other summits are often covered with clouds.

The plain at the head of the gulf consists of alluvial soil brought down by the Iri (Evrotas) River. Lofty mountains are seen in the background.

Elos Peninsula, the mountains of which are arid and sterile, forms the eastern side of the gulf. About 2 miles inland of the northeastern part of the gulf are the heights

of Mount Kurkula (Oros Kourkoula), 2,990 feet high; thence the mountains trend south-eastward to Mount Krithina (Krithinon), 2,600 feet high, and terminate 4 miles farther southeastward in Cape Malea.

2-4 Winds and weather.—Fair weather was generally experienced during a survey of the Gulf of Lakonikos between the months of April and August, 1902. The wind was usually from the westward and southwestward during the early part of the summer, setting in daily at about 11 a. m. with considerable strength, especially on Mani Peninsula, covering the mountain tops with clouds, usually moderating at night, but occasionally continuing without a break for 3 or 4 days, reaching home to the eastern shore and causing a considerable sea. These winds were generally accompanied by a haze.

Easterly and northeasterly winds seldom prevailed on the western side, but frequently occurred during the day on the eastern shore of the gulf. On one occasion in the middle of April a strong and steady gale from the northeastward, lasting 36 hours and accompanied by thick haze, set in without warning from the barometer, which remained high and steady throughout the gale.

Southerly winds never blew with any violence and seldom reached the head of the gulf. Their presence in the offing was apparent from the long swell setting in from that direction.

Light northerly winds, refreshing in their coolness and accompanied by a very clear atmosphere that rendered the distant lofty mountains clearly visible, occurred at rare intervals. Rain fell only on three occasions during this period of 5 months. The almost entire absence of clouds throughout the day and night was a marked feature, which, as midsummer approached, caused this treeless and rocky coast to become dry and superheated. Caution is necessary in exposing oneself to the sun during the summer months.

Fogs seldom occurred and did not last long. As a rule they formed only during the morning calms, before the heat of the day commenced.

2-5 WESTERN SIDE OF THE GULF OF LAKONIKOS.—This side of the gulf is rugged and irregular.

Cape Matapan (Tainaron) ($36^{\circ}23' N.$, $22^{\circ}29' E.$, *H. O. Chart 4100*), the western entrance point of the gulf, as well as the southernmost point of continental Greece, is the southern extremity of a small peninsula about 3 miles in length in a north and south direction. This small peninsula of dark grey marble is joined at its northern end to Mani Peninsula by an isthmus, 800 yards wide, which separates Port Marmari on the west from Port Kaio on the east. For a distance of $1\frac{3}{4}$ miles northward from the cape the land rises gradually to Matapan Mountain, 1,025 feet high, and then falls abruptly toward the isthmus; therefore, when seen from the eastward or westward at a distance of 12 miles or more, this small peninsula appears like a triangular or wedge-shaped island.

It has been reported that Cape Matapan is a good radar target with an echo range of 19 miles under normal conditions.

When the distance is so great that the high land of this small peninsula is below the horizon, Mount Miniatika, the flat-topped summit about $10\frac{3}{4}$ miles northward of Cape Matapan, will probably be seen. The southern slope of this mountain must not be mistaken for the high land of the cape, which will become visible on a nearer approach. When a vessel is immediately southward of the cape, the extremity of the cape cannot be recognized against the background of high land until the lighthouse is distinguished. Kisternes Hill, located 1 mile northeastward of the cape, and the terraced cliffs of Cape

Grosso, located 8 miles northwestward of the cape, are conspicuous.

Cape Matapan, steep-to and clear of danger, can be closely approached. The current in its vicinity sets westward at a rate of about 1 knot. During strong northerly winds small craft near the coast should be prepared for baffling and heavy squalls, which descend from the high land. In fine weather landing can be effected on the eastern side of the cape in position immediately under the lighthouse.

The coast westward of Cape Matapan is described in Pub. No. 54, *The Mediterranean*, Vol. III.

2-6 Cape Matapan Light, located near the extremity of the cape, is exhibited from a square masonry tower rising from the middle of a dwelling, the whole structure having a height of 52 feet.

Katergaki (Katergou) Rock, 6 feet high, lies 800 yards eastward of Cape Matapan and close offshore.

2-7 Port Asomato ($36^{\circ}24' N.$, $22^{\circ}29' E.$, *plan on H. O. Chart 4098*) is entered 1,200 yards north-northeastward of Cape Matapan. This inlet is about 400 yards wide at the entrance and recedes 600 yards northward to the head, which is divided into three coves. The depths are 17 to 10 fathoms in the middle, 4 to 3 fathoms close to the shore on either side, and 2 fathoms or less in the three coves. The inlet affords good shelter from all winds except those between south and southeast; as the hills about this inlet are not as high as those about Port Vathi, it is not subject to such heavy squalls as the latter.

A small village and a marble quarry are located at Port Asomato. On the western side of the middle cove is a well.

Kisternes Point (Akra Livadhi), located one-half of a mile eastward of the entrance to Port Asomato, separates this inlet from

Port Vathi. Kisternes Hill, which has a conspicuous, sharp, rounded summit, 344 feet high, rises immediately within the point. Depths of 5 fathoms extend a short distance northward from the point.

2-8 Port Vathi ($36^{\circ}24' N.$, $22^{\circ}29' E.$, *plan on H. O. Chart 4098*) is entered about 800 yards northwestward of Kisternes Point. From its entrance 300 yards in width, this inlet trends 700 yards northwestward to its head, which is divided into two coves. Although Port Vathi is sheltered from seaward by Kisternes Point, it is inferior to Port Asomato, as it is very narrow, has deep water, and is subject to heavy squalls from all directions. Fair anchorage is available at the head of the inlet in a depth of 11 fathoms, but as the width here is only 130 yards, vessels of any size must moor.

2-9 Port Kaio (Porto Kayio) ($36^{\circ}26' N.$, $22^{\circ}29' E.$, *plan on H. O. Chart 4098*), the bay entered $1\frac{1}{2}$ miles northward of Port Vathi, may be recognized from a distance by the break in the high land at the isthmus separating the head of this bay from that of Marmari. The entrance is 500 yards wide, but within the entrance the bay widens to 1,300 yards and recedes as far as 850 yards to the westward. North Point, the northern entrance point, is broad and reddish in color. Although open to the eastward and much restricted by Harbor Shoal, Port Kaio is superior to Port Vathi and Port Asomato.

The village of Port Kaio, somewhat hidden from the anchorage, is located on a hill, 500 feet high, about one-half of a mile southward of Entrance Point, the southern entrance point of the bay. About the shores of the bay are a few scattered houses, the most conspicuous being the buildings of a former monastery on the northwestern shore. On a

445-foot hill within the southwestern shore stands a conspicuous tower.

Steamers make regular calls at Port Kaio. Provisions are limited, as the inhabitants of this district obtain a scanty livelihood from their flocks and a little corn and fruit that they are able to cultivate in carefully prepared terraces on the rocky mountain slopes.

2-10 Harbor Shoal, a rocky patch located in the middle part of Port Kaio, has a length of about 270 yards in a northeasterly and southwesterly direction, a width of less than 90 yards, and general depths of 6 to 10 fathoms. On this shoal are two steep-to heads, Outer Rock, having a depth of 4 fathoms and lying 300 yards northwestward of the southern entrance point, and Inner Rock, having a depth of 2 fathoms and lying 350 yards west-northwestward of the same point. Both of these heads can be distinguished in the daytime by the color of the water over them.

The eastern extremity of the coast to the southeastward of Entrance Point bearing 150° and open eastward of Entrance Point leads northeastward of Harbor Shoal.

A light is shown on Entrance Point.

2-11 Anchorage.—The best berth is in the southern part of Port Kaio in a depth of 17 fathoms, sheltered from easterly winds. All but small vessels must moor. Anchorage can be obtained northward of Harbor Shoal, but here the depths are greater.

2-12 Coast (H. O. Chart 4100).—From Port Kaio to Dimaristika (Dhimaristika) Point, $3\frac{3}{4}$ miles northward, the coast is high and rugged, the mountains descending abruptly to the steep-to shore. About $1\frac{1}{2}$ miles northward of Port Kaio is a small cove, suitable only for small craft; nearby is the village of Kiprianos.

A light is shown on the point a little over 1 mile northwestward of Dimaristika Point.

From Dimaristika Point the coast trends first $2\frac{1}{4}$ miles north-northwestward and

then $3\frac{3}{4}$ miles northward to Kolokythia Bay. The mountain chains of Mount Kakovuni and Sanghia are plainly seen, and on their lower slopes are scattered villages with many towers, a common feature of all the houses on the western side of the Gulf of Lakonikos. Several indentations with considerable depths close inshore are used only by coasters; Port Nymphi (Nimfi), formed by a narrow cleft $4\frac{1}{8}$ miles northward of Dimaristika Point, is considered the most important. Near Port Nymphi is the village of Nymphi (Exo Nimfi) with 400 inhabitants.

2-13 Kolokythia Bay (Ormos Kolokithias), about 2 miles wide in the entrance between Argylia (Aryilia) Point on the southwest and Cape Kolokythia on the northeast, recedes northward for a distance of $1\frac{1}{2}$ miles. Cape Kolokythia is the southern extremity of a reddish, bluff promontory, and extending 600 yards southward from this cape is a rocky shoal with depths of 4 fathoms. The depths are great in the middle of the bay except for a 14-fathom patch nearly 1 mile southward of Cape Kolokythia.

Being open to the southeast and having on each side high land from which brief squalls frequently descend, Kolokythia Bay is not frequented except in case of necessity. The anchorage here is not good; the best berth is with the southern extremity of the small promontory at the head of the bay bearing 274° , distant 700 yards. At this berth the squalls that descend from the Sanghia Mountains to the west are felt the least. During the summer the sea breeze from the west commences about 11 a. m. and lasts until sunset. Its advent is frequently made known by the mountain tops becoming covered with clouds.

In the eastern part of the head of Kolokythia Bay is the village of Kotronas. In this small village are a post office and a telegraph office. In this region are located several other villages.

2-14 Port Skutari (Port Scutari) (Ormos Skoutari) (*inner part, 36°39' N., 22°31' E., plan on H. O. Chart 4098*), the bay entered between Cape Stavri and Cape Paganía, about 2¼ miles north-northeastward, recedes about 2½ miles in a northwesterly direction. Cape Stavri is the eastern extremity of the high, reddish promontory that separates Kolokythia Bay from Port Skutari. Cape Paganía, round, bold, and 393 feet high, is the southeastern extremity of the promontory, 520 feet high, forming the northeastern side of the bay. The depths decrease from 60 fathoms in the entrance to 20 fathoms at three-fourths of a mile off the beach at the head; about one-fourth of a mile off this beach are depths of 7 fathoms, mud.

The village of Skutari (Skoutari) is built on a hill, 252 feet high, at the head of the bay. Provisions in small quantities can be obtained.

2-15 Landmarks.—Conspicuous objects are the white dome of the chapel in the village; Refuge Bluff, 52 feet high, on the southwestern side of the bay; Stavri Hill, 607 feet high, rising above Cape Stavri; and Rounding Point (Cape Strongili), 390 feet high, on the northeastern side of the entrance.

Paganía Rock, over which the depth is 5 fathoms, is located on a rocky ledge extending 400 yards south-southeastward from Cape Paganía and having depths of less than 10 fathoms. When coming from the northward, vessels should round Cape Paganía at a distance of one-half of a mile.

2-16 Anchorage.—Port Skutari is well sheltered from all winds except those from the southeast, to which it is entirely open, but as the bottom is mud, the bay is considered a safe place. The berth affording the best shelter is in a depth of 11 fathoms with Refuge Bluff bearing 190°, distant about 1,200 yards, and the chapel, 289°.

Squalls from the high mountain slopes to the westward are less severely felt here than elsewhere in the bay.

2-17 Coast (H. O. Chart 4100).—From Cape Paganía the coast trends 1¼ miles northward to Cape Kremidara (Krommidhara); thence the coast recedes westward to form a semicircular bay with an irregular shore and a width of 4 miles. Although this bay does not afford shelter, temporary anchorage can be obtained in depths of 13 to 14 fathoms about one-third of a mile off the beach in two smaller bays, each a mile wide, called South (Kato Vathi) Bay and Vathi (Epano Vathi) Bay. These two smaller bays are separated from each other by a steep point, on which stands a conspicuous tower at an elevation of 350 feet. The bottom slopes steeply in both bays.

Wreck.—The wreck of a small tanker, with a depth of 1 fathom over it, lies sunk at the head of South Bay about 1 mile southward from the conspicuous tower described above.

Mavrovuni Point, the northern entrance point of the above-mentioned bay, may be approached as close as one-fourth of a mile, being steep-to. Close off the southern side of the point is a rock, 2 feet high, on which the sea nearly always breaks. The village of Mavrovuni (Mavrovounion), built on rising land above the point, is conspicuous from all directions.

Between Mavrovuni Point and a cliffy point surmounted by a conspicuous tower, 4 miles northeastward, the coast recedes slightly westward to form a bight. About midway on the western side of this bight is the Port of Githion, and on a hill near the shore of the middle part of the northwestern side are the ruins of a fort, named Kaki Skala.

Trinisi (Poliaigos), a group of three small black islets, lies as far as one-half of a mile

south-southwestward of the cliffy point surmounted by a conspicuous tower. These islets are connected with each other and the shore by shallow water. Inshore of these islets is a sheltered anchorage frequented by coasting craft.

2-18 Port of Githion (Yithion) (Gythion) ($36^{\circ}45' N.$, $22^{\circ}34' E.$, *plan on H. O. Chart 4098*), located at the foot of a hill about $1\frac{1}{4}$ miles northward of Mavrovuni Point, is the principal seaport of this district, of which Sparta, located 25 miles to the north, is the capital. This port is sheltered from southerly winds by Cranæ (Kanai) Islet (Marathonisi), having a length of 470 yards in an easterly and westerly direction and connected by a short causeway to the shore at the southern end of the town. On this islet stands a small church, built in the form of an ancient temple. The area northward of this islet is subject to a swell during easterly winds.

Inner Harbor, a quayed basin for coasters, is formed inside a jetty extending about 228 yards northward from the middle part of the town. This basin has depths of 5 to 12 feet, the former figure being alongside the jetty.

2-19 Landmarks.—The following marks at the Port of Githion are conspicuous: The lighthouse on Cranæ Islet; the chapel on Githion Hill, 549 feet high; the clock tower of a church immediately south of the Inner Harbor; large conspicuous house, about 100 feet above sea level, at southern end of the town; Municipal Law Court Building at the northern end of the town.

On a hill northward of the present town are the vestiges of the ancient town.

Lights.—A light is exhibited from a marble tower, 75 feet high, on the eastern end of Cranæ Islet.

A light is shown on the head of the jetty.

2-20 Anchorage.—The best berth is in a depth of 17 fathoms with the lighthouse on Cranæ Islet bearing 161° , distant 550 yards.

There is a berth, with a depth of about 12 feet alongside, on the inner side of the jetty.

Deep draft vessels are unloaded at the anchorage by fishing craft.

There are no pilots.

Small vessels with local knowledge anchor closer to the jetty or closer to Cranæ Islet.

A foul area, the position of which is approximate, lies about 625 yards eastward of the head of the jetty.

Directions—Caution.—A vessel from southward should pass about 800 yards eastward of the lighthouse on Cranæ Islet and then steer 310° until the light structure on the head of the jetty at Githion bears 265° when course may be changed for the harbor. Caution is necessary when approaching the entrance as it is not marked; also, depths decrease rapidly towards the coastal bank.

2-21 Winds.—Clouds lying low over Cape Malea and Kythera Island are a sign of southerly winds, but if the clouds appear to rise and mount in spirals over Cape Malea and Kythera Island, it is a sign of northerly winds. Westerly winds can be expected when clouds cover the range of Mount Taygetos.

2-22 Directions.—Xyli Peak, a conspicuous truncated peak on the eastern side of the Gulf of Lakonikos, is a good mark for vessels making the Port of Githion. The two promontories terminating to the eastward, respectively, in Cape Stavri and Cape Paganía are recognizable on the western side of the gulf, the former being the higher of the two. About 5 miles north-northeastward of Cape Paganía is Mavrovuni Point, appearing reddish in color and having on it a village. When vessels are coming from Elaphonisos Channel, Mount Taygetos is a useful mark.

Give Cranæ Islet a berth of more than 800 yards. When approaching the anchorage or the shore northward of the anchorage, take soundings, as the shallow coastal bank rises suddenly from deep water.

2-23 GITHION (YITHION) (GYTHION) (36° 45' N., 22° 34' E., plan on H. O. Chart 4098) had a population of 6,100 in 1966. This town has a post office, a telegraph office, a customhouse, and a sub-harbor office. Provisions are available on short notice, and fruit is plentiful during season. Drinking water and diesel oil can be obtained in small quantities.

Local steamers make regular calls.

Meteorological table.—See appendix II.

Hospital.—There is a small hospital.

2-24 Coast (H. O. Chart 4100).—From a position close eastward of the islets of Trinisi the low marshy shore forming the head of the Gulf of Lakonikos trends eastward 8 miles to the base of Mount Kurkula. The Iri (Evrotas) River runs through the valley at the head of the gulf and discharges into the sea by several mouths, the principal being about 3 miles eastward of the islets of Trinisi. The bar is shallow, but within the bar the river is navigable for some distance by flat-bottomed boats. The valley in the interior is cultivated. The shore along the head of the gulf should be given a berth of 1 mile, and soundings should be taken.

2-25 EASTERN SIDE OF THE GULF OF LAKONIKOS.—Mount Kurkula (Oros Kourkoula) (36° 48' N., 22° 49' E., H. O. Chart 4100), located 2 miles northeastward of the eastern end of the head of the gulf, is easily distinguished, being round-topped and 2,990 feet high. About 1 mile southward of Mount Kurkula rise Twin (Dhidhimoi) Peaks, the southern and higher peak of which is 2,561 feet high. Southward of Twin Peaks the mountain range slopes rapidly to the low flat hills bordering Phiniki (Foiniki) Plain. This plain, well cultivated and having numerous villages, is occasionally partly flooded during the winter.

2-26 Coast.—From the red cliff terminating the sandy beach at the head of the gulf the coast, consisting of cliffs and sandy beaches, trends southward for 9 miles to Cape Xyli. Scattered rocks lie close inshore. Kokina (Kokkinia) Tower stands on a cliff near the head of the gulf.

2-27 Elea (Elaia), a small port of rising importance, is a small cove located 3 miles southward of the head of the gulf. Mulaos (Molaoi) Point, forming the southern side of the cove, is easily distinguished by a 135-foot tower on it and by an islet, 40 feet high, lying close offshore. A rock above water lies 200 yards southeastward of this islet. A small mole projects 175 feet northward from the northern side of Mulaos Point. When a vessel is coming from the westward, the houses of the village of Elea (Elaia) are visible.

Provisions can be obtained at Mulaos (Molaoi), a town of 2,200 inhabitants located on the eastern slope of Mount Kurkula, about 6 miles distant from the port by a good road.

A light is shown from a metal tower, 16 feet high, on the head of the small mole at Mulaos Point.

2-28 Anchorage.—As the anchorage at Elea is exposed and the depths are somewhat irregular, vessels should anchor one-half of a mile westward of the village in depths of not less than 12 fathoms. Care should be taken to avoid the shallow spit extending seaward from the low sandy point northward of the village.

A recommended berth is about 600 to 1,000 yards westward of the mole. The depths here vary between 9 and 12 fathoms, sand and mud. Large vessels should avoid coming closer in, as the water shoals rapidly, bottom being rock and stones. Heavy seas are experienced during strong southerly or southwesterly winds. Only small caiques can use the harbor inside the mole.

2-29 Xyli (Xili) Bay open southward, is about midway along the eastern side of the Gulf of Lakonikos. The entrance is 2¾ miles wide between Cape Xyli (Xili) on the northwest and Cape Arkangelos on the southeast. This large bay is further divided into two inner bays, the northern one being

named Xyli Bay and the southeastern one being named Arkhangelos Bay. The northeastern shore between these two bays is bordered by a coastal bank, which should be given a wide berth. During heavy rains several streams discharge along this shore, but in the summer they are usually dry.

Xyli Bay is sheltered on the west by a promontory projecting southward for a distance of 2 miles and rising at its middle to a height of 1,056 feet in Xyli (Xili) Peak. When seen from the southward, this promontory appears like an island having the form of a truncated cone, and at a distance of 12 miles the white rocks on Xyli Peak appear like the ruins of a castle. The land southward of Xyli Peak is comparatively low and terminates in Cape Xyli, which has a round summit and is joined to the promontory by an isthmus. The rugged summit of Mount Kimatissa, 1,715 feet high, rises about 2 miles inland of the northeastern shore of the bay; and 1 mile westward of this summit is Acropolis (Akropolis) Rock, a remarkable flat-topped rock, 1,015 feet high, on which are the ruins of a chapel and other buildings. The sides of this rock are very steep. Mount Kimatissa, when seen from the southward, has conspicuous white rocks on its summit.

The northern head of Xyli Bay is called Port Arasma. A stone mole extends 755 feet southwestward from the southeastern point of Port Arasma. The harbor northward of this mole can accommodate only caiques, which make their sterns fast to the mole. The village of Plitra at the harbor has about 200 inhabitants.

Arkhangelos (Archangelo) Bay, the semi-circular bay about $3\frac{1}{2}$ miles southeastward of Port Arasma, is three-fourths of a mile wide in the entrance and open to the northwestward. It is sheltered from southwest winds by Cape Arkhangelos (Archangelo), a tongue of land terminating in a

hill. Bordering the shore of the bay is a narrow coastal bank, off which the depths increase rapidly. A depth of 10 fathoms is located in a position about one-half of a mile north-northwestward of Cape Arkhangelos.

About $1\frac{1}{4}$ miles inland rises Mount Astratigos, 1,400 feet high. A small village with a church is located at the head of the bay.

2-30 Lights.—A light is exhibited from an iron column on a hut, the whole 19 feet in height, located on the eastern side of Cape Xyli.

A light is occasionally exhibited on the head of the mole at Port Arasma.

2-31 Anchorage.—Anchorage, exposed to the south, is available in depths of 9 to 12 fathoms, sand, about one-fourth of a mile southward of the head of the mole at Port Arasma. An alternative berth, where there is better shelter from the southwest, is in 5 fathoms, sand and stones, about one-fourth of a mile west-southwestward of the head of the mole.

Wrecks.—Two wrecks lie sunk, respectively about one-fourth of a mile north-northwestward and one-half of a mile north-northeastward from Cape Xyli Light.

2-32 Coast.—From Cape Arkhangelos the coast trends $1\frac{1}{2}$ miles southeastward to Lyriotiki (Liriotiki) Point (Akra Kakavlaki), and on this latter bluff point stands the conspicuous tower of Phunia (Fonias). A bank with depths of less than 5 fathoms extends 800 yards southwestward from the coast close southeastward of Cape Arkhangelos, and closer inshore along this coast are some rocks, one of the Monk (Kaloyiroi) Rocks being 4 feet high.

Klaro (Glaros) Islet ($36^{\circ}35' N.$, $22^{\circ}54' E.$, *H. O. Chart 4100*), about 1 foot high, is located about three-fourths of a mile southeastward of Lyriotiki Point. A shoal with depths of 2 to 4 fathoms extends about 800 yards southward from this islet, and at a

short distance within the extremity of this shoal are some rocks 4 feet high.

2-33 Anchorage can be taken in depths of 10 to 11 fathoms one-half of a mile northward and one-half of a mile southeastward of Klaro Islet. Coasters with local knowledge take shelter in the shallow water northeastward of the islet.

Kulendi (Kelendhi) Point, 339 feet high, is a projecting point of the mainland about 3 miles southeastward of Klaro Islet. On this point stands a conspicuous tower. The coast southeastward of the point becomes lower, and 3 miles farther southeastward is the boat channel separating Elaphonisos from the mainland.

Anchorage can be taken in a depth of 12 fathoms three-fourths of a mile northward of Kulendi Point and one-half of a mile offshore.

2-34 Elaphonisos (Elafonisos) (Cervi Island) (*plan on H. O. Chart 4097*), the southwestern extremity of which forms the eastern entrance point of the Gulf of Lakonikos, is triangular in form, each side being about 3 miles in length. This island is 906 feet high, barren, and devoid of water. The northern end, low, sandy, and bordered by shoals and rocks, is separated from the mainland, which is also bordered by shoals, by a tortuous boat channel having a minimum width of 100 yards and a least depth of 6 feet. A strong current sets westward through this channel. A village with a white chapel is located on a point that projects from the island into the eastern part of the channel, and on the mainland side of this end of the channel lies Petri Isle.

A light is shown on a small islet about $\frac{1}{3}$ mile southwestward of Petri Isle.

The northwestern side of Elaphonisos is irregular and bordered by shoal water. The Poriki (Poria) Islets are located in that part of the shoal water extending offshore as far as one-half of a mile.

Cape Santa Maria (Ayia Maria), the southwestern extremity of the island, has shoal water extending 200 yards from it. This cape, as well as the northwestern side of the island, should not be approached too closely.

The southern side of Elaphonisos between Cape Santa Maria and Phrango (Frango) Point, $2\frac{3}{4}$ miles eastward, is indented northward to a distance of 1 mile by Saraceniko (Sarakiniko) Bay. The head of this semi-circular bay is shallow, and on the eastern side of the bay is Point Helena (Elena), having the appearance of an islet but connected on its northeastern side to the shore by a low sandy isthmus. Phrango (Frango) Point, the cliffy southeastern extremity of the island, is steep-to, but Point Helena has shoal water extending 100 yards from it. The small bay between these two points is named Phrango (Frango) Bay. A vessel requiring immediate shelter from northerly or northeasterly winds can anchor about 800 yards off the head of Saraceniko Bay in depths of 8 to 15 fathoms; as the holding ground is uncertain, Vatika Bay is a better anchorage.

From Phrango Point the eastern coast of Elaphonisos trends $3\frac{1}{2}$ miles northward to the point on which is located the previously mentioned village with a white chapel. Lephki (Levki) Bay, entered 1 mile northward of Phrango Point, has been found to be a useful and convenient anchorage during strong westerly or southwesterly winds, when Saraceniko Bay and Vatika Bay are less safe.

2-35 ELAPHONISOS TO CAPE MALEA.

—Vatika Bay (Voiatikos Kolpos) (*middle, 36°29'N., 23°01'E., H.O. Chart 3965*), having an average width of $3\frac{1}{2}$ miles and receding $4\frac{1}{2}$ miles in a northerly direction, is formed between Elaphonisos on the

west and Elos Peninsula on the east. The bay is surrounded by an amphitheater of hills, the most lofty peak being Mount Aspro, 2,180 feet high, located to the northward. Between the foot of these hills and the low swampy shore at the head of the bay is a cultivated plain. The town of Neapolis is located on the northeastern shore, and the village of Gliki can be seen half way up the mountain $1\frac{1}{4}$ miles southeastward of the town.

A church located about one-fourth of a mile northeastward of the root of the pier at Neapolis is easily recognized, and a small chapel on the point about $1\frac{1}{4}$ miles southward of Neapolis is also a good landmark.

The bay is frequented by vessels encountering strong adverse winds. Southerly winds cause a heavy sea, but they always give sufficient warning of their approach to enable vessels to clear the bay. The shore on either side may be approached to a distance of one-half of a mile; when a vessel is passing near Point Saint Elia (Ayios Ilias), the eastern entrance point of the bay, the white sandy bottom with black rocks can at times be distinguished.

A light is shown from an iron tower, 6 feet high, located on a prominent point about $1\frac{1}{4}$ miles southward of Neapolis.

2-36 Anchorage.—Vessels anchor as convenient off Neapolis in about 15 fathoms, or at the head of Vatika Bay, where, during easterly or northeasterly winds, a good berth may be obtained a little more than one-half of a mile from the shore in 10 or 12 fathoms, sandy bottom. The bottom on the eastern side of the bay is uncertain, being rocky in places.

During a westerly or southwesterly gale, or even with the wind at south-southwest, it is stated by local seamen that the best anchorage is about one-fourth of a mile eastward of Petri Isle, where they consider a vessel to be safe in any wind, the sea forced through the channel between Elaphonisos and the mainland being here met by the cur-

rent setting in the opposite direction, which reduces its effect to a swell only. Consequently vessels in this position are said to ride easily at their anchors, for, although squalls may reach the vessels, the chains have no undue strain on them; eastward of this anchorage the sea breaks heavily.

Prohibited anchorage.—Anchorage is prohibited within a radius of one-half of a mile from Phrango Point on Elaphonisos.

2-37 Neapolis, built on the site of ancient Voion, has about 1,750 inhabitants. A pier 197 feet long has 7 feet off its head. Fresh provisions are available. The town has a customhouse and a telegraph office. Steamers make regular calls.

2-38 Coast.—Saint Elia (Ayios Ilias) Rock lies one-half of a mile southeastward of Point Saint Elia. The rock is surrounded by shoal water extending 400 yards from the coast abreast of it. The small chapel of Saint Elia stands on the coast 1 mile eastward of the rock. From the chapel the high coast trends 1 mile east-southeastward to Zovollo Point.

A light is exhibited from a white iron tower 10 feet high, on Zovollo Point.

2-39 Cape Malea ($36^{\circ}26' N.$, $23^{\circ}12' E.$, *H. O. Chart 3965*), the southeastern extremity of Elos Peninsula, is located $3\frac{1}{2}$ miles eastward of Zovollo Point; the intervening high coast between them recedes 1,400 yards northward to form a bight. The cape is a steep-to, bold headland, rising to a height of 1,970 feet.

The coast northward of Cape Malea is continued in section 2-79.

2-40 Cape Malea Light, located 1 mile northward of the extremity of the cape, is exhibited from a square tower on a dwelling, the whole 49 feet high.

Vessels coming from the westward will not open out this light until Cape Malea is abaft the beam.

2-41 Current.—The current in the vicinity of Cape Malea generally sets westward with a velocity of about 1 knot, but its strength and direction vary with the wind.

2-42 KYTHERA (KITHIRA) (CERIGO) ISLAND (*H. O. Chart 3965*), the large island forming the southern side of Elaphonisos Channel, has a length of 16 miles in a north and south direction and a maximum width of 10 miles. This arid and mountainous island of volcanic formation attains a height of 1,668 feet on the western side and that of 1,605 feet on the eastern side. In the middle of the island is a high plateau. The coast is generally high and scarped, and here and there are small off-lying islets surrounded by deep water.

The climate is temperate and healthy, but the island is subject to violent whirlwinds that sometimes cause considerable damage, destroying trees and vineyards. In the mountains is pasture land for sheep and goats. The products are wine, olive oil, melons, figs, currants, almonds, onions, fresh fruit, and flax, all of which are exported. Grains are cultivated for local consumption. Fishing contributes much to the prosperity of the island.

The principal town is Kythera, located near Kapsali Bay at the southern end of the island. The town of Potamos, located in the interior of the northern part of the island, has telegraphic communication with the mainland. A broad highway runs through the middle of the island.

2-43 WESTERN SIDE OF KYTHERA ISLAND.—The western coast of Kythera is high, sinuous, and clear of hidden off-lying dangers. Small islets lie here and there at distances of one-half to 1 mile offshore, but

the water near them is deep. Heavy whirling squalls often come down from the high land during strong northeasterly winds.

2-44 Cape Spathi ($36^{\circ}23' N.$, $22^{\circ}57' E.$, *H. O. Chart 4100*), the northern extremity of Kythera Island, consists of salient steep cliffs, 328 feet high. These cliffs are level at the top, but the land southward of them rises gradually. Close northward of this cape lies a 3-fathom rock, surrounded by deep water. Vessels can pass the cape at a distance of one-half of a mile.

During northeasterly winds, when landing is impossible at Santa Panaghia (sec. 2-66), passengers and goods for the northern part of the island are landed at the cove on the western side of Cape Spathi. Care must be taken to avoid a rock, nearly awash, lying about 400 yards offshore. A depth of 2 fathoms is found immediately eastward of the rock.

Cape Spathi Light, located about 600 yards within the cape, is exhibited from a circular masonry tower, 82 feet high. Near the tower stands a dwelling, and between the tower and the cape is a signal mast, which is not conspicuous.

2-45 Cape Karavugia (Akra Karaboyias) (Karavouyia), located $1\frac{1}{2}$ miles west-southwestward of Cape Spathi, has about 300 yards northward of it a black, flat rock, 7 feet high. Close northwestward of this rock is another rock with less than 6 feet of water over it.

Coast.—From Cape Karavugia the high and steep coast trends $3\frac{1}{2}$ miles south-southwestward to Akra Armenopetra, close off which lies Platanos Rock (Armenopetra), 32 feet high, having a conical shape when seen from either northward or southward.

As this coast is bordered by rocks, landing is difficult.

2-46 Pallikari Bay, entered between two points located, respectively, 2 and $2\frac{1}{2}$ miles south-southeastward of Platanos Rock, is free of dangers and affords only temporary anchorage. Vessels should leave this bay at once on the approach of a westerly wind, which creates a turbulent sea all along this coast.

2-47 Cape Ruphugialos (Konfoyalos), located one-half of a mile southward of the southern entrance point of Pallikari Bay, is the northern termination of a series of dark cliffs, 800 feet high, which have a sheer drop to the sea. Two rocks, one being 38 feet high, lie immediately northward of the cape, and immediately southward of the cape is a small inlet with a shingle beach at its head, beyond which an extensive ravine forms a break in the cliffs. A rock, 30 feet high, lies close off the north side of this inlet.

Axini Islets (Menopetra), two in number, lie in the western approach to Phana Kopia Bay. The northern islet, 22 feet high, having an 8-foot rock close southeastward of it, is located $1\frac{1}{2}$ miles south-southwestward of Cape Ruphugialos. The southern islet, 31 feet high, lies one-half of a mile south-southeastward of the northern islet and close offshore. Foul ground extends 500 yards northwestward from this latter islet, and also in this area in a position 400 yards west-northwestward of the islet is a rock, on which the sea nearly always breaks. The passage between the two Axini Islets has uneven depths and is not recommended.

2-48 Phana Kopia (Fana Kopia) Bay, which indents the coast eastward of the Axini Islets, affords the only anchorage in this vicinity. Although the bay is fairly well sheltered from the westward, the backwash caused by the swell striking the cliffs northward of the bay creates a confused sea

and a swell. The slopes of Mount Kythera, the highest point of the island, descend abruptly to the southern shore of the bay. Landing is difficult except during fine weather. A path leads to the village of Mitata, located at the center of the island and not visible from the sea.

2-49 Anchorage.—When coming from the northward, the best way to approach the anchorage at Phana Kopia Bay is to pass Cape Ruphugialos at a distance of one-half of a mile and anchor in a depth of 16 fathoms before the southern Axini Islet is shut in by a projecting point on the southeastern side of the bay. Platanos Rock will be seen open westward of the land southward of Cape Ruphugialos as a further guide. When coming from the southward, round the northern side of the northern Axini Islet.

2-50 Coast (H. O. Chart 3965).—From the southwestern limit of Phana Kopia Bay the coast trends $2\frac{1}{4}$ miles southward to Cape Lindo (Lindho), and close northward of Cape Lindo it is indented by a bight. From Cape Lindo to Kapsali Bay, 6 miles southeastward, the rocky coast, bold and high, has some caves in it.

Melidoni (Melidhoni) Bay, located 2 miles northwestward of Kapsali Bay, has possibilities for landing, but is open to the southward. **Grunia (Gourounia) Rocks**, located close southward of the eastern entrance point of Melidoni Bay, are two rocks, 5 and 6 feet high. A rocky patch lies 500 yards northeastward of these two rocks.

Lindo (Lindho) Islets (Makronisi), two in number, lie one-half of a mile southwestward of Cape Lindo. The southern and larger islet, 92 feet high, has its low northern part nearly detached, and off its southern and western sides are small detached rocks.

Strongilo Islets, also two in number, lie $1\frac{1}{4}$ miles south-southeastward of the Lindo Islets. The southern islet, 110 feet high, is

600 yards from the northern islet, 100 feet high, and between them are detached sunken rocks.

2-51 Caution.—The Strongilo Islets and the Lindo Islets lie in the track of vessels navigating between Kapsali Bay and the Port of Githion. Being comparatively small and low, they are difficult to make out under the high land, especially at night, and a wide berth should be given them. The features of the coast are not very decided; therefore it is not easy to fix the position of a vessel when Ovo Island (Avgo) is not visible.

2-52 SOUTHERN SIDE OF KYTHERA ISLAND.—Kapsali Bay ($36^{\circ}08' N.$, $23^{\circ}00' E.$, plan on *H. O. Chart 4098*), the semicircular bay indenting the southern end of Kythera Island, is 1,500 yards wide in its entrance between Cape Trakhili (Trakhilos) on the west and Cape Grosso on the east, and recedes about the same distance in a northerly direction. Cape Trakhili is the termination of a tongue of cliffy land first extending southward and then southeastward, thus sheltering the bay from southwesterly winds and sea. Cape Grosso owes its name to its massive size. The water is everywhere deep, decreasing gradually from 25 fathoms in the middle of the entrance. A small promontory, on which stands the lighthouse, separates two small coves in the northeastern part of the bay. The eastern cove is circular, foul, and only 55 yards wide in its entrance; the western cove, much larger, is used by coasters. Along the sandy northeastern shore of this latter cove is built the village of Kapsali.

2-53 Aspect.—Mount Kapsali, located northwestward of Kapsali Bay, is flat-topped and 1,574 feet high. It has a conspicuous monastery on its northwestern extremity, from which the land descends in steep, rocky terraces to the coast. Kentdivi Hill, 1,088 feet high and circular in form, rises close northward of the bay; on its summit is a

white house. Standing at an elevation of 590 feet on the northwestern side of the bay is a conspicuous, large Venetian fortress, which fronts the town of Kythera. The white mill on Cape Grosso, the only building in that vicinity, cannot be mistaken.

2-54 A light, located on the western extremity of the small promontory projecting from the northeastern side of the bay, is exhibited from a white tower on a dwelling, the whole being 19 feet high.

Wrecks.—A dangerous wreck lies sunk in Kapsali Bay in a position 300 yards 247° from the lighthouse. Another wreck lies about $\frac{1}{4}$ mile south-southeastward of the lighthouse.

2-55 Anchorage.—The best berth in Kapsali Bay is in a depth of 16 fathoms, sand and mud, with the lighthouse bearing 030° , distant 400 yards. This anchorage is safe only under favorable conditions, being exposed to southerly and southeasterly winds, which send in a heavy sea. Although the bottom is mud and sand, the anchors do not hold well. The squalls from the hills are often violent.

Coasters with local knowledge anchor in a depth of 4 fathoms under the lee of the lighthouse. Northeastward of this anchorage and 100 yards off the sandy beach lies a rocky shoal with less than 6 feet of water over it. A 5-fathom shoal lies about 200 yards southwestward of the lighthouse.

2-56 Kythera (Kithira) (Cerigo), the town built on a hill one-half of a mile northwestward of Kapsali Bay, has about 900 inhabitants. The village of Kapsali, located on the northeastern side of the bay, has a population of about 120. Provisions are available. The town has a post office and a telegraph office; steamers make regular calls.

Meteorological table.—See appendix II.

2-57 Ovo (Avgo) ($36^{\circ}05' N.$, $22^{\circ}59' E.$, *H. O. Chart 3965*) lies 2 miles southward of Kapsali Bay, for which bay it is a good recognition mark. This steep-to island has a length of 1,200 yards in a north and south

direction and a height of 647 feet. Its bare, round surface appears, as the name of the islet implies, like a large egg.

2-58 Cape Kapela (Kapello), located 2 miles eastward of Cape Grosso of Kapsali Bay, is the southeastern extremity of Kythera Island. From Cape Kapela the coast, 300 feet high and skirted by rocks, trends $5\frac{1}{2}$ miles northward to Saint Nikolo Bay.

Kupho Islets (Kofinidhia) (Koufonisia), two in number, lie $2\frac{1}{4}$ miles east-southeastward of Cape Kapela. The northern and larger islet has a height of 33 feet. The southern islet, located 1,200 yards south-southeastward of the northern one, has a $1\frac{1}{2}$ -fathom rock lying 400 yards off its southern side. Except for this rock the waters around these islets are deep and clear of danger. A vessel could pass between the two islets, but caution is necessary, as the current is strong and irregular.

2-59 EASTERN SIDE OF KYTHERA ISLAND.—Saint Nikolo (Ayios Nikolaos) Bay ($36^{\circ}13' N.$, $23^{\circ}04' E.$, plan on H. O. Chart 4098), located $5\frac{1}{2}$ miles northward of Cape Kapela, is about $1\frac{1}{2}$ miles wide in its entrance and recedes over one-half of a mile in a northerly direction. Mothoni (Mothonaion) Point, the low eastern entrance point, has rocks extending 200 yards from it. Northward from this point the land rises gradually to Mount Saint Georgio (Ayios Yeoryios), 1,248 feet high, with a small church near its summit. The mountain slopes steeply on its western side, and about halfway down is a counterscarp of reddish earth. On the northern side of the bay stands a castle, and westward of the castle the head of the bay is a sandy beach with some cliffs and some scattered rocks in the water. Along this part of the bay are the ruins of the ancient town of Kythera.

Port Saint Nikolo (Ayios Nikolaos) (Avlemon), entered eastward of the castle, is a small inlet receding about 300 yards in a northeasterly direction. The entrance is 100 yards wide and 6 fathoms deep, but inside the inlet widens out and has depths of $2\frac{1}{4}$ fathoms. This inlet, the best in the island, has on its northwestern side the village of Saint Nikolo, connected by a good road with the town of Kythera.

2-60 A light is exhibited on the southeastern entrance point of Port Saint Nikolo.

Wrecks.—A dangerous wreck lies sunk 200 yards 313° from the light at Port Saint Nikolo, and a stranded wreck is located 365 yards 016° from this same light.

2-61 Anchorage.—Saint Nikolo Bay affords anchorage during offshore winds. A heavy swell sets in during southerly and southeasterly winds. In the past vessels have been wrecked when surprised in the port by these winds.

A recommended berth is in a depth of 17 fathoms, sand and mud, about 800 yards southwestward of the castle. From this position the islet of Dragonera is hidden by Mothoni Point.

2-62 Directions.—Vessels entering Saint Nikolo Bay generally come from the archipelago. First make Cape Malea and then Makri Hill, the latter being the highest point on the eastern side of the island, after which Mount Saint Georgio, located to the south-eastward, will be seen. Pass seaward of the Dragoneres Islets, and round Mothoni Point at a distance of 400 yards or more.

Caution.—The survey of Saint Nikolo Bay is imperfect, and the plan should be used with caution.

2-63 Dragoneres (Dhragoneres) Islets, two in number, lie close off the eastern extremity of Kythera Island, which is that part of the coast trending northward from

Saint Nikolo Bay. Both islets are covered with scanty grass and low scrub. From eastward the southern islet is made out first; on a nearer approach, the appearance of the two is very similar, both having in the middle a dip producing two hummocks.

Anti Dragonera (Andidragonera), the northern and smaller islet, 93 feet high, is free of dangers. It is separated from the mainland by a channel having a width of 400 yards and depths of 13 fathoms. If using this channel, keep to the islet side. A light is shown on the northeastern extremity of the islet.

Dragonera (Dhragonera), lying 800 yards southward of and parallel to Anti Dragonera, has a length of 1,200 yards and a height of 120 feet. In the shoal water extending a short distance from its eastern extremity is a rock above water; here the sea breaks heavily during northeasterly winds. A shoal with depths of 4 to 3 fathoms extends in a northwesterly and southeasterly direction across the channel separating this islet from the mainland, and the bottom is foul in that part of the channel westward of the islet.

Anchorage.—Small vessels can obtain temporary anchorage between the two islets in depths of 11 to 20 fathoms. Vessels have the advantage of three passages for leaving.

2-64 Coast (H. O. Chart 3965).—From Anti Dragonera the northeastern coast of Kythera Island trends 12 miles northwestward to Cape Spathi (sec. 2-44). Along this steep-to and high coast are a few sandy beaches, and no dangers lie offshore. Aghia Pelagia Light is shown on the coast about $3\frac{1}{4}$ miles south-southeastward of Cape Spathi Light.

Makri Islet (Makronisos), located 2 miles northwestward of Anti Dragonera, lies close to the shore under Makri Hill, 1,605 feet high. Having a length of 1,400 yards in a north and south direction and a height of 95 feet, the islet is connected at its low southern end to the mainland by a rocky ledge with a depth of 2 feet. Rocks above

water extend a short distance from the eastern side of the southern part of the islet, and about one-half of a mile farther eastward and separated by depths of 10 fathoms is the smaller islet of Ophidi (Prasonisi) (Fidho), 43 feet high.

2-65 Makri Harbor, formed between Makri Islet and the mainland, is sheltered from all winds but those from the northeastern quadrant. The harbor has some coasting trade, for the convenience of which a stone mole was constructed near the village on the mainland shore.

The harbor affords a berth for one large vessel. A good berth is in a depth of 12 fathoms with the northern extremity of the islet bearing 055°, distant 600 yards.

2-66 Santa Panaghia (Ayia Pelayia), the landing place for the town of Potamos in the interior, is located $5\frac{1}{2}$ miles northwestward of Makri Harbor. This place can be recognized from seaward by a small village, southward of which stands a tower. The village has a mole with a length of 444 feet, and in 1965 there was a depth of less than 13 feet at the head of the mole, from which a light is shown. A submarine cable from the mainland is landed at Santa Panaghia.

Anchorage is available off Santa Panaghia in a depth of 12 fathoms.

In 1939 a British naval vessel anchored about 1 mile off Santa Panaghia in a depth of 21 fathoms, sand and clay, with the light-house on Cape Spathi bearing 327°. A westerly wind of force 6 to 7 caused heavy squalls, but it did not interrupt boat work.

2-67 Elaphonisos (Elafonisos) (Cervi) Channel (H. O. Chart 3965), between Elaphonisos and the southern end of Elos Peninsula on the north and Kythera Island on the south, is the most direct channel for vessels proceeding from the west to the Grecian Archipelago, although it is the narrowest of the three channels between the mainland of Greece and the large island of Crete. It has a minimum width of $4\frac{1}{2}$ miles, and the only danger is the 3-fathom rock close northward

of Cape Spathi. Navigation through this channel is assisted by the lights on Cape Matapan, Cape Spathi, and Zovollo Point. This channel is much used, and thus the state of the weather in the Aegean Sea may be obtained from passing vessels.

In bad weather or before a northerly gale, Mount Krithina, 2,600 feet high, located 4 miles northwestward of Cape Malea, is always shrouded by a dense mass of clouds, which whirl and roll down the sides of the mountain with great velocity; the wind follows quickly and with great force.

2-68 Directions.—Having passed Cape Matapan when coming from the westward, shape a course to pass northward of Cape Spathi at a safe distance of one-half of a mile or more. Cape Malea can be rounded at a convenient distance, as the depths are great close inshore, but heavy squalls may descend from the high land. When rounding Cape Malea from the westward with the wind north of west, a vessel will probably find northerly or northeasterly winds blowing in the Aegean Sea.

Caution.—Vessels proceeding eastward through the channel should remain southward of a line joining Cape Matapan and Cape Spathi until nearing the latter; vessels proceeding westward should remain northward of a line joining Cape Zovollo and Cape Matapan until approaching the latter Cape.

2-69 ANTIKYTHERA (ANDIKITHIRA) (CERIGOTTO) ISLAND (*northern extremity, 35°54' N., 23°16' E., H. O. Chart 3965*), a rocky, hilly island forming the southern side of Kythera Channel, is located 17 miles southeastward of Kythera Island. Some islets and dangers, described later, lie in the channel northward of this island. Extending $5\frac{3}{4}$ miles in a north-northwesterly and south-southeasterly direction and rising to a height of 1,230 feet on its western side, Antikythera Island has a barren aspect, although the inner valleys are cultivated. The coast consists of inaccessible cliffs, and

sand is nowhere to be seen.

Cape Kephali (Kefali), the northern extremity of Antikythera Island, is formed of reddish, steep-to cliffs, 630 feet high. Lying 800 yards west-northwestward of the cape, from which it is separated by depths of 19 fathoms, is the little islet or rock of Psira, with a diameter of 200 yards.

2-70 The western coast of Antikythera Island is high, rugged, steep-to, and free of dangers. Port Camarella (Kamarila), a small rocky cove about $2\frac{1}{4}$ miles southward of Cape Kephali, is at times used by boats during strong easterly winds.

About 300 yards northwestward of Cape Apolitares is another small cove, having a width of 200 yards and indenting the coast to a distance of 100 yards. It is sheltered from northerly winds and seas, and is the only cove in the whole island not subject to squalls. The depths in the middle of the entrance are 16 to 17 fathoms, decreasing to $2\frac{3}{4}$ fathoms at the head, where three shoals lie about 40 yards offshore. A small rock emerges close to the shore within the southeastern entrance point, and larger rocks lie a short distance off the northern shore.

2-71 Cape Apolitares (Apolitarais), the southern extremity of the island, is a steep-to, level, projecting point, 80 feet high.

Cape Apolitares Light is shown from a white tower, 59 feet high, attached to a keeper's dwelling located about 180 yards within the extremity of the cape.

2-72 The eastern coast of Antikythera Island is free of dangers, but this side of the island is not so high as the western one. The southern part of this coast has a small cove, but Port Potamos in the northern part is the only harbor in the whole island.

2-73 Port Potamos ($35^{\circ}53'N.$, $23^{\circ}17'E.$, plan on H.O. Chart 4098), located $1\frac{1}{4}$ miles southeastward of the northern extremity of the island, is entered between Rovithi Point on the west and Cape Kastro (Akra Kastron) on the east. The latter point is formed by high, steep cliffs, within which are the ruins of Paleo Kastro. From the entrance, 600

yards wide, the port recedes southward between high rocky shores for a total distance of one-half of a mile, narrowing at two inner points, within which is an oval-shaped basin about 400 yards in extent. The depth in the entrance is 20 fathoms, decreasing to 10 and 6 fathoms in the inner basin. During strong northerly winds a dangerous heavy swell sets in.

Akra Kastron Light is shown on the northern tip of Cape Kastro.

Anchorage.—Anchorage can be taken in 10 fathoms, sand, about $\frac{1}{2}$ mile south-southwestward of Cape Kastro.

The small village of Potamos is located at the head of the inner basin, and on a hill on the eastern side of this basin stands a white fort.

Thermoni (Thermones) Rocks, 30 feet high, lie in the eastern approach to Port Potamos in a position 350 yards northeastward of the northeastern face of Cape Kastro. Sunken rocks lie close southward of the southeastern rock, and shallow water extends about 300 yards farther southward from them. Between this shallow water and the rocks along the mainland is a passage with a width of 200 yards and a depth of 5 fathoms.

2-74 Islets and dangers northward of Antikythera Island.—Pori Islet ($35^{\circ}58' N.$, $23^{\circ}14' E.$; *H. O. Chart 3965*), located 4 miles northward of Cape Kephali, the northern extremity of Antikythera Island, is 1,400 yards long, 410 feet high, and precipitous.

Vythi (Vathi) Rock, located three-fourths of a mile northward of Pori Islet, from which it is separated by depths of 40 fathoms, is a 4-fathom rocky shoal surrounded by deep water.

Poretti Islet, having precipitous sides, a height of 130 feet, and a diameter of 400 yards, lies 2 miles southwestward of Pori Islet. The passage between these two islets has depths of 40 to 48 fathoms. A rock above water lies close westward of Poretti Islet.

Nautilus (Navtilos) Rock, located $3\frac{1}{4}$ miles northwestward of Cape Kephali and $1\frac{1}{4}$ miles south-southeastward of Poretti Islet, is 300 yards long in an east and west direction and 10 feet high. From a distance this rock has the appearance of scattered rocks, as it is very jagged. Sunken rocks lie eastward and westward of the above-water part, giving the entire danger a length of 800 yards. The water about 100 yards off this danger is deep.

A rocky shoal about one-half of a mile in diameter lies about one-third of a mile north-eastward of Nautilus Rock. On this shoal are heads of $3\frac{1}{4}$ to 4 fathoms.

2-75 Note.—A singular horizontal mark, precisely the same all around Antikythera Island, Pori Islet, and Poretti Islet, is worthy of notice and attracts the eye. Located about 7 feet above the water, this uniformly straight and horizontal mark is formed by the rock being worn away to a depth of 2 inches, much resembling a high mark in places subject to regular tides. It is said that in winter the water is much higher than usual, but never reaches this mark.

2-76 Kythera (Cerigo) Channel (Stenon Kithiron), between Kythera Island on the north and Antikythera Island on the south, is the middle one of three channels leading from the westward into the Grecian Archipelago. Several islets and dangers lie off both islands, leaving a clear fairway about 10 miles wide.

Bank.—A bank with a depth of 20 fathoms lies in Kythera Channel, about 15 miles westward of Pori Islet.

2-77 Directions.—Should a vessel from unfavorable winds or other causes be so far southward as to render it advisable to take Kythera Channel, it should keep to the northern side. By day, pass on either side of Ovo Islet. At night, pass southward of Ovo Islet and then steer eastward with the islet bearing 276° astern; when the high land at

the eastern end of Kythera Island bears less than 355° , you will be eastward of the Kupho Islets and can steer as convenient. Cape Spathi Light will open out when bearing 319° , and Cape Malea Light when bearing 345° .

2-78 Antikythera (Cerigotto) Channel (Stenon Andikithiron), between Antikythera Island on the north and Crete on the south, is 16 miles wide and free of dangers. The Madara Mountains (Levka Ori), 8,100 feet high, of Crete are seen at a great distance, and are nearly always capped with snow. When taking this channel, vessels should keep to the Antikythera side. During northerly or northeasterly winds a strong current sets westward.

For a description of the coast of Crete, see H.O. Pub. 55, *The Mediterranean*, Vol. IV.

2-79 CAPE MALEA TO THE GULF OF NAUPLIA—OUTLYING ISLANDS—Coast (*H. O. Chart 3965*).—From Cape Malêa (sec. 2-39), the high, bold, southeastern termination of Elos Peninsula, the coast trends $16\frac{1}{2}$ miles in a general north-northwesterly direction to the island and town of Monemvasia. This irregular coast is mountainous and uninhabited, presenting an inhospitable appearance. There are several bays, completely unprotected and unsuitable for anchorage because of great depths.

Kurno (Gourouna) Rocks, about 3 miles northwestward of the lighthouse of Cape Malea, extend a short distance offshore. Almost everywhere else the shore is steep-to.

Cape Kamili, located $6\frac{1}{2}$ miles north-northwestward of Cape Malea, is a small, low spit. On this spit stands a hummock, resembling the back of a camel. About 1 mile west-northwestward of the cape is Port Kamili, a small bay open to the north and northeast.

2-80 Monemvasia ($36^\circ 41' N.$, $23^\circ 03' E.$, plan on *H. O. Chart 4097*), located 10 miles

north-northwestward of Cape Kamili, is an oblong-shaped island extending 1,800 yards in an east and west direction. Joined to the mainland by a rocky ridge, on which stands a bridge with a length of 536 feet and 14 arches, this island is easily recognized from seaward by the ancient castle on its summit and by the town built on its southeastern part. The town is enclosed by two walls descending from the castle to the sea. A tower is located on the eastern side of the bridge that joins the island to the mainland.

Mount Lakanas (Lakhanas), located 2 miles westward of the island, rises to a height of 1,960 feet.

A light is shown from a metal framework tower and hut standing on Cape Monemvasia, the eastern extremity of the island.

2-81 Anchorage.—During the summer temporary anchorage can be obtained in depths of 15 to 18 fathoms, sand and weeds, northward of the bridge connecting Monemvasia to the mainland. When a southerly or a southeasterly gale, accompanied by a falling barometer, is blowing off Cape Malea, the water at this anchorage is comparatively smooth, although violent squalls are blowing over the rocky ridge connecting the island to the mainland, and a vessel taking shelter here should be prepared for a sudden shift of the wind to the west or north, with a continuance of heavy squalls.

Foul ground exists between a position about midway along the northern coast of Monemvasia Island and a position close southward of Cape Kiriaki, which is the entrance to the above anchorage. Foul ground also lies about 300 yards northward of the western end of Monemvasia.

Prohibited anchorage.—Anchorage is prohibited within one-half of a mile northward, eastward, and southward of the eastern end of Monemvasia Island. The limits of this area are shown on the chart.

2-82 This section has been deleted.

2-83 Monemvasia, a small town, consists of houses built in terraces on the southeastern slope of the island. Provisions in limited quantities are available, but water is scarce. Gasoline, fuel oil, and lubricants are available in limited quantities. The town has a customhouse, a post office, and a telegraph office. Coastal steamers make regular calls.

In 1945 the population was about 650.

Piers.—Two small piers exist at the western end of Monemvasia, one northward and the other southward of the causeway.

2-84 Gulf of Epidhavros Limira is entered between the island of Monemvasia and Cape Kremidi (Kremmidhi) (Kromidhion), $2\frac{1}{2}$ miles north-northeastward. A bank extends from the shore immediately westward of Cape Kremidi, the depths on it being 4 fathoms as far as 400 yards offshore and less than 10 fathoms as far as 800 yards offshore. Foul ground extends 200 yards eastward from Cape Kiriaki, located on the western side of the gulf in a position 1 mile northward of the island of Monemvasia.

Kremidi (Kremmidhi) Bay, entered about 1 mile westward of Cape Kremidi, is the eastern and larger of two bays indenting the northern side of the gulf. Having a width of more than one-half of a mile in the entrance, the bay recedes about the same distance in a northerly direction and has depths of 19 to 6 fathoms. This uninhabited bay affords shelter from northerly and westerly winds. Foul ground exists across the entrance to Kremidi Bay. These obstructions extend an unknown distance on the bearing 268° from a point 2.67 miles 011° from Monemvasia Light. At the eastern end of the obstruction are three submerged buoys.

2-85 Prohibited anchorage.—Anchorage is prohibited within a distance of about one-half mile offshore between Cape Kremidi

and a point, marking the entrance to Kremidi Bay, located about 1 mile west-northwestward of the cape.

Anchorage is also prohibited within a distance of about one-fourth of a mile off the eastern side of Cape Kremidi, between the cape and a point about one-half of a mile northward.

The limits of these areas are shown on the chart.

Port Paleo (Palaia Monemvasia), the western bay on the northern side of the Gulf of Epidhavros Limira, is separated from that of Kremidi by a promontory terminating to the southward in Cape Paleo Monemvasia (Palaia Monemvasia). Small vessels can obtain anchorage in depths of 4 fathoms, sheltered from northerly and westerly winds. At the head of the port is a small settlement, where water in small quantities can be obtained; on the western side are the ruins of Epidhavros Limira.

A light is shown from the eastern entrance point of Port Paleo.

Wrecks.—Two dangerous wrecks lie about $1\frac{1}{2}$ mile westward and 300 yards northwestward, respectively, of Port Paleo Light.

2-86 Cape Ieraka (Ierax) (Yerakas) ($36^\circ 46'$ N., $23^\circ 06'$ E., *H. O. Chart 3965*), a prominent headland, is located 3 miles north-northeastward of Cape Kremidi, the northern entrance point of the Gulf of Epidhavros Limira. The intervening coast between these two capes recedes westward about 1 mile, and close offshore lies the small islet of Daskalio (Dhaskalio). Cape Ieraka with its red cliffs is conspicuous from southward. On a hill about one-half of a mile westward of the cape stands a conspicuous mill.

2-87 Port Ieraka (Ierax) (Yerakas) ($36^\circ 47'$ N., $23^\circ 05'$ E., *plan on H. O. Chart 4097*), located $1\frac{1}{4}$ miles north-northwestward of

the cape of the same name, is entered between Cape Kari on the southeast and Point Kyphanta (Koufanda) on the northwest. Being backed by high land and having a narrow entrance, this bay is difficult to make out. From its entrance, 600 yards wide, the bay trends 800 yards in a southwesterly direction, gradually becoming narrower; thence the bay trends 500 yards west-northwestward to the entrance of a large shallow lagoon, where there is a fishery. The outer part of the bay has depths of more than 21 fathoms, while the inner part has depths of 7 to $1\frac{3}{4}$ fathoms, mud. The shore everywhere is steep-to. Cape Kastro, where the bay turns west-northwestward, has northward of it the ruins of an acropolis, and on the northern side of that part of the bay trending west-northwestward is the small village of Ierakas.

2-88 Anchorage.—Vessels anchor in the arm trending west-northwestward in depths of 6 to 8 fathoms, sand. Here vessels are sheltered in all weathers. Only caiques can proceed as far as the village, where the depths are less than 18 feet in the stream.

Tides and currents.—The maximum tidal range is about 1 foot. There are no currents.

A light is shown from Cape Kastro.

2-89 Landmark (H. O. Chart 3965).—A conspicuous church, a useful mark for a vessel making Port Ieraka from the northward, stands on a hill near the coast 3 miles northward of Port Ieraka.

2-90 Coast.—About 2 miles north of Port Ieraka is Cape Vathi. About three-fourths of a mile southward of the cape and nearly one-half of a mile offshore lies a 3-fathom patch. About 1 mile northwestward of the cape stands the above-mentioned conspicuous church.

Cape Vathi Avlaki is located $3\frac{1}{4}$ miles north-northwestward of Cape Vathi. Immediately southward of Cape Vathi Avlaki is a small bay, reported to afford safe anchorage during winds from the east. From this cape the coast trends 7 miles north-north-

westward to Port Kyparisi, about $1\frac{3}{4}$ miles south-southeastward of which is Cape Kourmazi (Kourmazi).

2-91 Port Kyparisi (Kiparissi Bay) affords moderate anchorage to small vessels in depths of 15 to 6 fathoms. Vessels here are sheltered from all winds but those from the east and southeast. Kyparisi (Kiparissi), a village of about 800 inhabitants, has a post office and a telegraph office. Coastal steamers call.

A light is shown from the southern entrance point of Port Kyparisi. A light is also shown from the northern entrance point of Port Kyparisi.

2-92 Coast.—Port Phokianos (Ormos Fokianos) is located 5 miles northward of Port Kyparisi, with Cape Trikeri about midway between them. This uninhabited small bay can be used only by small vessels, which enter on a northwesterly course and anchor in depths of 8 to $1\frac{1}{2}$ fathoms. Used principally as a refuge from northerly winds, this bay is sheltered from all winds but those from the southeast.

Mount Turkoviglia (Tourkoviglia), which rises close northeastward of the head of Port Phokianos, terminates to the east in Cape Turkoviglia (Tourkoviglia). From this cape the precipitous coast trends $2\frac{1}{2}$ miles north-northwestward to the southeastern entrance point of Port Pulithra.

Shoals.—A $1\frac{1}{4}$ -fathom rocky patch lies $\frac{1}{4}$ mile southeastward of the southeastern entrance point of Port Pulithra. Vessels navigating in Port Pulithra must guard against a 2-fathom rocky patch lying $1\frac{1}{4}$ miles west-northwestward of the southeastern entrance point and about 400 yards offshore.

2-93 Port Pulithra (Ormos Poulithras), an open deep-water bay, recedes westward from its southeastern entrance point. Cape Sabbatiki (Savvataki) (Savataki) (Sambateki), located 5 miles north-northwestward of the southeastern entrance point, is the northern limit. Mount Saphlaurus (Oros Saflaouroil), lo-

cated on the southern side of the bay, rises to a height of 2,458 feet. The sudden break in the mountain range backing the coast and the valley, which extends towards the inland village of Leonidi, are most conspicuous. The long white beach in the northern part of the bay is also conspicuous.

Local informants state that black clouds over Spetsai Island (sec. 2-130) indicate southeasterly winds and that a cloud over the southern entrance point of Port Pulithra is a sign of westerly winds.

Lights.—A light is exhibited from an iron column on a hut, the whole 19 feet high, on Cape Sabbatiki.

A light is shown from a concrete column on a building on the head of the mole at Leonidi.

Rocks.—Some uncharted rocks are reported to lie one-half of a mile eastward and the same distance southeastward of Cape Sabbatiki.

2-94 Anchorage.—The anchorage is close eastward of the mole head in depths of 7 to 12 fathoms, sand. It is exposed from the northeast to southeast. During strong southeasterly blows vessels often shift to the southern part of Port Pulithra, where a bluff affords shelter. The tonnage of the largest vessel to use the anchorage at Plaka Leonidhion was 1,500 tons.

2-95 Leonidi (Leonidhion), located $1\frac{1}{2}$ miles inland from the middle part of the western shore of Port Pulithra, has a population of about 2,000. The town has a telephonic communication.

Plaka Leonidhion, the port for Leonidi, has a stone mole extending 304 feet in a southerly direction. Inside this mole, small craft with local knowledge secure with stem hawsers in $5\frac{1}{2}$ fathoms.

The harbor westward of this mole has depths varying between 50 and 20 feet, sand, and can accommodate only caiques. Coastal steamers call here. There is a customhouse.

Pulithra (Poulithra), a village of about 600 inhabitants on the southwestern shore of the bay, has a post office and telephonic communication.

2-96 Belo Pulo (Parapola) (Kaimeni) ($36^{\circ}56'$ N., $23^{\circ}27'$ E., *H. O. Chart 3965*), the first of three outlying islets between Cape Malea and the Gulf of Nauplia, is located 31 miles north-northeastward of Cape Malea. It is near the track of vessels bound from Cape Malea to Piraeus. The islet has a height of 744 feet and a length of $1\frac{3}{4}$ miles in a north-northwesterly and south-southeasterly direction. A sunken rock lies close offshore on either side of the northwestern point, but the remainder of the islet is steep-to. Landing is difficult on this precipitous islet. It has been reported that Belo Pulo is a good radar target with an echo range of 4 miles under normal conditions.

To a vessel having rounded Cape Malea, Belo Pulo appears as an egg cut in two, but on a nearer approach, this appearance changes.

There is a small bay near the southeastern end of the southwestern side of the island. Small vessels can obtain temporary anchorage here in depths of $5\frac{1}{2}$ fathoms during northeasterly winds.

Belo Pulo Light is exhibited from an octagonal tower on a square dwelling, the whole 33 feet high, on the northwestern point of the islet.

Banks.—A bank, with a depth of 15 fathoms, is located about 3 miles southeastward of the southeastern extremity of Belo Pulo.

A bank with a depth of about 38 fathoms over it is located about $4\frac{1}{2}$ miles northwestward of Belo Pulo Light.

Karavi, a barren islet or rock, 110 feet high, is located 28 miles northeastward of Cape Malea and $10\frac{1}{2}$ miles southeastward of the islet of Belo Pulo. Landing is most difficult on this steep-to and precipitous islet. Fishermen consider this an excellent area for fishing.

2-97 Gerakunia (Falkonera) (36°50' N., 23°53' E., the islet located 14 miles east-northeastward of Karavi, has a height of 600 feet and a length of 2 miles in an east and west direction. The shores of this islet are clear of dangers except for a sunken rock lying a short distance off the western point. During good weather the islet is frequented by fishermen, who stay in the open bay let on the southern side.

A light is shown from an iron column on a hut, the whole 10 feet high, standing on the eastern peak of Gerakunia.

Currents.—At times the currents are strong in the vicinity of Gerakunia; coming from opposite directions, two currents meet off the eastern point of the islet and cause eddies.

2-98 GULF OF NAUPLIA (ARGOLIKOS KOLPOS) (*H. O. Chart 4114*).—This gulf, the entrance of which is 13 miles wide between Cape Sabbatiki on the west and Spetsai (Spezzia) Pulo on the east, recedes about 27 miles in a north-northwesterly direction. The gulf is bounded on either side by mountainous land. Mount Sevetila, located 11 miles north-northwestward of Mount Saphlaurus, rises to a height of 3,622 feet, and Mount Zavista, 13 miles farther north-northwestward, attains a height of 3,190 feet. The slightly irregular western shore is low in places, while the eastern shore is indented by a few bays and has several off-lying islands.

The depths in the gulf are exceedingly great, but within 4 miles of the head they are less than 20 fathoms, sand and mud, where vessels can obtain a suitable berth by use of soundings.

2-99 WESTERN SIDE OF THE GULF OF NAUPLIA—Coast.—From Cape Sabbatiki the coast trends 5 miles north-northwestward to Cape Trikeri, immediately southward of which is Tyro Bay (Ormos Tirou), unsuitable for a long stay. The vil-

lage of Tyros (Tiros), built along the recess of the bay, has a post office and telegraphic communication.

Caution.—Mariners are cautioned that the depths in the gulf are reported to be less than charted, particularly near the center and at the head of the gulf.

2-100 Cape St. Dimitrios (Ayios Dhimitrios) (37°20' N., 22°49' E., *H.O. Chart 4114*) is located 4 miles north-northwestward of Cape Trikeri, and on the shore 2½ miles farther north-northwestward are some warehouses. About 1¾ miles southwestward of these warehouses is the inland village of St. Andreas, having a post office and a telegraph station.

2-101 Cape Astros, the eastern extremity of a rocky promontory projecting from the Plain of Astros, is located 5½ miles north-northwestward of Cape St. Dimitrios. On the promontory are the ruins of an acropolis, and on the southern side of the promontory is the port of Paralion Astrous with a small harbor formed by a breakwater.

2-102 Anchorage.—The recommended berth outside the harbor is 200 yards south-eastward or southward of the head of the breakwater in depths of 7 to 10 fathoms, mud and sand. This berth is exposed from northeast, through east, to south.

Clouds forming a cap over the summit of Mount Zavista indicate southeasterly winds according to local fishermen. During easterly to southerly gales a heavy sea sets up, making an uncomfortable berth inside the harbor.

A light is exhibited from a square masonry tower, 23 feet high, attached to a dwelling located on the southern extremity of the rocky promontory of Cape Astros.

2-103 Astros (37°25' N., 22°46' E., *H.O. Chart 4114*), located inland of Cape Astros, has about 2,250 inhabitants. Being the principal town for the Plain of Astros, it has a considerable export trade in cereals, legumes, olives, and grapes. The town has postal, telephonic, and telegraphic facilities.

Parallon Astrous, the port for Astros, has a customhouse and coastal steamers call. There is a harbor for caiques, up to 250 tons, inside a harbor formed by a breakwater extending 428 feet in a southwesterly direction from the western side of Cape Astros. A second breakwater, extending southeastward, was under construction in 1966. The depths near the lee of the breakwater are about 3 fathoms, mud, and shoal gradually toward the shore, the bottom changing to sand.

2-104 Coast.—From Cape Astros the shore trends $2\frac{3}{4}$ miles north-northwestward to Cape Purno (Pournos), westward of which rises Mount Zavista, 3,202 feet high. In 1892 a vessel reported that the depths within the 30-fathom curve were less than those charted along this part of the coast.

Cape Kiveri ($37^{\circ}31' N.$, $22^{\circ}44' E.$, *H.O. Chart 4114*), is located $3\frac{1}{2}$ miles northward of Cape Purno, and the intervening coast is slightly indented by a bay. Close northward of the cape are the ruins of a fort, in front of which stands the village of Kiveri, having postal and telephonic facilities. At the northern end of the village is a small mole for boats. Local vessels anchor temporarily in depths of 8 to 6 fathoms, sand.

Myli (Miloi), a village of about 300 inhabitants, is located $2\frac{1}{4}$ miles north-northwestward of Cape Kiveri and opposite the city of Nauplia. As the 5-fathom curve is over one-half of a mile offshore, large vessels anchor 1 mile eastward of the village in depths of 7 fathoms. Although this berth is subject to southerly winds, the holding ground is very good. Small vessels anchor one-half of a mile offshore in depths of 4 to $3\frac{1}{4}$ fathoms.

A light is shown from the head of the pier at Myli.

A shoal with a depth of less than 4 fathoms is located in a position about $1\frac{1}{4}$ miles east-southeastward of Myli.

2-105 Head of the Gulf of Nauplia—Landmarks.—At the head of the Gulf of

Nauplia stretches the low and cultivated Plain of Argos. On this plain in a position 3 miles inland stands the city of Argos, connected by railroad with Myli and Nauplia.

The depths at the head of the gulf increase gradually, the 5-fathom, the 6-fathom, and the 10-fathom curves being 1, $1\frac{1}{2}$, and $2\frac{1}{2}$ miles, respectively, southward of the northern shore. However, in 1950, less water was reported to exist at the head of the gulf. Shallow and irregular depths extend as far as $1\frac{1}{4}$ miles westward from the shore northward of the port of Nauplia.

Two shoals, about 100 yards apart and with depths of less than 4 fathoms, are located in a position a little over 1 mile west-southwestward of Panagia Point Light. Depths of less than $2\frac{1}{2}$ fathoms are located in an area to the northeastward of a line drawn about one-half of a mile 289° from Panagia Point Light, thence about $1\frac{1}{3}$ miles 298° , and thence 004° to the northern shore. Other shoals are described under the port of Nauplia.

2-106 Landmarks.—Conspicuous landmarks around the head of the gulf are as follows: The ruins on the summit of Mt. Pontinus (Pondinos), 582 feet high, located close westward of Myli; the factory on the northern shore in a position $2\frac{1}{2}$ miles northeastward of Myli; the white chapel on the summit of Mount St. Elias (Ayios Ilias), 664 feet high, located $2\frac{1}{4}$ miles north-northeastward of Nauplia; two white buildings on Monastery (Monastiri) Hill, 354 feet high, located 1 mile south-southwestward of Mount St. Elias; the fortress on Palamidi, located close southeastward of Nauplia; and the prison and the barracks on Itskali in the city of Nauplia, when a vessel is north of Panagia Point. When one has passed Spetsai Island, the fortress on Palamidi constitutes an exceptional mark for the recognition of Nauplia; having proceeded into the gulf

for several miles, one can see the beacon on the Acropolis of Larissa, on a hill, 948 feet high, close westward of the city of Argos. One-third up the eastern slope of this hill is a conspicuous white church.

2-107 EASTERN SIDE OF THE GULF OF NAUPLIA—Port of Nauplia (Navplion) (*37°34' N., 22°48' E., H.O. Chart 4114*).—Palamidi (Palamidhion), a precipitous hill, 719 feet high, located on the eastern side of the head of the gulf, is the western termination of a range of barren hills. Immediately northwestward of this hill the peninsula of Itskali, 282 feet high, projects into the gulf for a distance of 700 yards in a westerly direction. On the northern half of this peninsula is built the town of Nauplia, off which is the harbor.

2-108 The harbor consists of a western and an eastern basin, both of which are small. A breakwater extending nearly 150 yards in a northwesterly direction from the peninsula forms the western side of the western basin, and a small pier separates the western basin from the eastern one. The inner side of both of these basins is quayed. A channel, dredged to a depth of approximately 19 feet in 1955, passes close off the breakwater head and the pier head; it leads to the eastern basin, which also was dredged to a depth of 19 feet. In 1957, it was reported that vessels with drafts not exceeding 18 feet could enter and berth alongside.

Burgi, a small rocky islet, 64 feet high, is located 350 yards north-northwestward of the head of the breakwater. An ancient fort stands on the islet.

2-109 Lights.—A light is shown from Panagia (Panayia) Point, the southwestern extremity of the peninsula of Itskali.

A light is shown from the head of the breakwater.

Shoals.—Several 6-fathom patches lie from $\frac{1}{2}$ to $1\frac{1}{2}$ miles westward of Panagia Point; and two of these patches, located about 1,400 to 1,600 yards westward of the point, as well as a 5-fathom patch 400 yards northward of them, consists of rocks. Some other rocky bottom is located from 1,600 to 1,800 yards westward of the islet of Burgi.

In 1950 it was reported that a shoal with a depth of about 4 fathoms was located about $1\frac{1}{4}$ miles west-southwestward of Panagia Point.

A $4\frac{3}{4}$ -fathom patch and two $4\frac{1}{4}$ -fathom patches lie about $\frac{1}{4}$ mile, 1 mile and $1\frac{1}{2}$ miles, respectively, west-northwestward of Panagia Point. A $5\frac{1}{2}$ -fathom patch lies about 2 miles west-southwestward of the above point.

2-110 Buoys.—A light buoy is moored about 110 yards north-northwestward of the light structure on the head of the breakwater.

A buoy is located about 100 yards south-eastward of the light structure on the breakwater.

2-111 Anchorage.—Vessels can anchor anywhere westward and southwestward of the harbor in depths of 7 to 8 fathoms, mud, taking care not to anchor on the above-mentioned rocky patches or the several detached shoals. Large vessels should not bring Panagia Point to bear more than 108° . The best berth for these vessels is in 7 fathoms with Panagia Point bearing 092° , distant 800 yards. Although this berth is subject

to a swell during southerly winds, the holding ground is good. Small vessels may anchor in the eastern basin while awaiting berthage.

Pilotage is not compulsory but is recommended. Several experienced pilots were available in 1957.

2-112 Tides.—The maximum rise occurs with strong southwest winds, with a rise of about $3\frac{1}{4}$ feet in the inner harbor and $6\frac{1}{2}$ feet in the outer harbor. The normal rise is about 1 foot in the inner harbor.

Note.—During February, March, and April mean sea level may fall as much as $1\frac{1}{2}$ feet below normal.

2-113 Directions.—Vessels entering the harbor must pass close off the head of the breakwater, between it and the lighted buoy on the northern side of the entrance channel, where the depth is about 23 feet. The entrance is very narrow and can only be entered by small vessels due to the depth of water which varies from $1\frac{1}{2}$ to $4\frac{1}{2}$ fathoms.

Winds.—According to the harbor master and local fishermen strong westerly and northerly winds affect the working of cargo of ships at anchor. West winds are preceded by dark clouds over the hills of the mainland forming the western side of the Gulf of Nauplia. A sign of a northerly blow is a cloud cap forming on Mt. Arna Arachne located 12 miles east-northeastward of the Port of Nauplia.

2-114 NAUPLIA (NAVPLION) ($37^{\circ}34' N.$, $23^{\circ}48' E.$, *H.O. Chart 4114*), the town built on the peninsula of Itakali, consists of an old part and a new part, the latter being built on the lower ground near the harbor. A customhouse is located here, and agricultural products are exported. In 1951 the population numbered 8,500.

Piers.—The inner side of the breakwater has berthing space of 280 feet, with a depth of 8 feet. West Quay, 820 feet long with depths of 3 to 6 feet, extends northeastward from the root of the breakwater. A pier, 262 feet long with depths of 11 to 18 feet, extends northwestward from the end of West Quay. East Quay,

820 feet long with depths of $14\frac{1}{2}$ to 19 feet, extends eastward from the root of the latter pier.

The port has one mobile crane of 3-ton capacity, reported damaged (1961); there are no pugs or lighters.

Repairs.—Minor repairs can be effected.

Supplies.—Provisions are available in moderate quantities. Water, available in limited quantities, is piped to the pier and the eastern quay. The water should be treated before drinking. Fuel oil is available in limited quantities.

Hospital.—A hospital with 35 beds is located here.

Communication.—The town has postal, telegraphic, and railroad facilities. Coastal steamers make regular calls.

Climate.—The climate of Nauplia and of the entire head of the gulf is very good. During the winter it is damp, but the rainy days are not frequent (8 per month). The percentage of clear weather is great, and the violence of the north winds is lessened by the configuration of the terrain. The summer is warm, but the temperature drops considerably at night.

During summer the sea and land breezes are very regular; the sea breeze sets in from the south-southeast about 11 a. m. and blows until between 8 and 10 p. m. It is then succeeded by the land wind from north-northeast, which continues until about 6 a. m., when it falls calm until the sea breeze again sets in.

2-115 Karathona Bay is entered $11\frac{1}{2}$ miles southeastward of Panagia Point. The intervening coast, backed by high hills, has depths of 5 fathoms close offshore. Having a width of 1,200 yards, the entrance to the bay has depths of 10 fathoms, which shoal gradually toward the head, a distance of 800 yards. Karathona Islet, 45 feet high, lies 300 yards northward of the southern entrance point, 246 feet high, to which it is connected by shoal water.

Large vessels can anchor in the entrance in a position 500 yards northward of Karathona Islet, while smaller vessels can take a berth in 5 fathoms 300 yards east-northeastward of Karathona Islet.

2-116 St. Vincent (Ayios Vikentios). Shoal ($37^{\circ}31' N.$, $22^{\circ}49' E.$, *H.O. Chart 4114*).—About one-half of a mile southeastward of the southern entrance point of Kara-

thona Bay the precipitous coast forms Cape Khondros. About 800 yards west-southwestward of the cape lies St. Vincent Shoal, having general depths of 8 to 7 fathoms and a least depth of 33 feet. This shoal, visited by fishermen, is considered dangerous only for large vessels.

To pass southwestward of St. Vincent Shoal, keep the southwestern extremity of Dhascalia Islet bearing less than 115° and open southwestward of the southwestern side of Tolon Island.

2-117 Tolon (Tolos) Island ($37^\circ 30' N.$, $22^\circ 52' E.$, *H.O. Chart 4114*), located $2\frac{1}{2}$ miles southeastward of Karathona Bay, is separated from Cape Rui (Roui), on the mainland to the northward, by a passage with a width of 400 yards and a least depth of 6 fathoms in the fairway. Having a length of 1 mile in an east and west direction, this rocky and uninhabited island is steep-to and precipitous. Dhascalia (Dhas-kalia) Islet lies in the entrance of a foul bay that indents the southern side of the island; on the islet are the ruins of an ancient fort.

A light is shown on the southeastern side of Tolon Island. A light is shown on Akra Meghali, the western extremity of Tolon Island.

2-118 Port Tolon (Ormos Tolou) is at the northeastern end of the passage separating Tolon Island from the mainland. On the mainland stands the village of Rui (Tolos). Fronting this port and lying 400 yards northward of Tolon Island is the small and steep-to islet of Koro. About one-half of a mile northwestward of the village rises Mount Chakali (Tsakali), 1,101 feet high.

Tolon Island affords shelter from southwesterly winds, but the port can be used only by small vessels that can make fast to the shore, the bottom being loose gravel. Eastward of Port Tolon, except near the shore, the depths are too great for suitable and safe anchorage.

Tolon (Tolos) Rock, a steep-to rock with a depth of 2 fathoms over it, lies 1,800 yards southeastward of the southeastern extremity of Tolon Island and $1\frac{1}{2}$ miles west-southwestward of the northwestern extremity of Platia Island. This rock does not lie in the track of vessels bound for Nauplia, but it does constitute a danger for vessels going to Port Tolon or Port Khaidari.

Cape Khondros bearing 309° and open southwestward of Tolon Island leads southwestward of Tolon Rock, while Mount Chakali bearing 319° and open northeastward of Tolon Island leads northeastward of the rock.

2-119 Platia Island, located 1.8 miles east-southeastward of Tolon Island, extends 1.2 miles in a northwesterly and southeasterly direction. This precipitous and uninhabited island is steep-to and free of dangers. On its western side is a white triangular cliff, conspicuous from a great distance.

2-120 Port Khaidari (Ormos Khaidariou), a fine natural bay on the mainland $1\frac{1}{2}$ miles northward of Platia Island, recedes about 1 mile in a northwesterly direction and has an average width of 700 yards. The depths decrease gradually from 30 fathoms in the entrance to 5 fathoms at 400 yards off the head, where there is an entrance into a shallow and rocky lagoon used as a fishery. The high shores of the bay can be approached as close as 50 yards. Although the entrance is narrow, it can be recognized by the ruins of a Venetian fort on the western entrance point and a chapel on the eastern entrance point.

A light is shown from the eastern entrance point southward of the chapel.

The village of Khaidari (Dhrepanon), located one-half of a mile west-northwestward of the lagoon, has postal and telegraphic facilities.

2-121 Hypsili (Ipsili) (*eastern end, 37° 26' N., 23° 00' E., H.O. Chart 4114*), located 3½ miles southeastward of Platia Island, is an island with a height of 797 feet and a length of 1½ miles in an east and west direction. The island is steep to all around, the 100-fathom curve passing 300 yards off the bold and cliffy southern side of the island.

A light is shown on the southwestern end of Hypsili Island.

Cape Ieri (Iria), located 1½ miles northward of the eastern extremity of Hypsili Island, is a projecting point of the mainland. Northward of the cape the shore is low, and for a distance of 2 miles along this shore the 5-fathom curve is 400 yards offshore. Inland of this low shore is the village of Ieri (Iria).

It has been reported that Cape Ieri is a good radar target with an echo range of 19 miles under normal conditions.

2-122 Vurlia Bay (Ormos Vourlia), entered between Cape Ieri and Cape Vurlia (Vourlia), 1½ miles eastward, recedes 1½ miles in a northeasterly direction. In most places the depths are too great for anchoring, but sometimes local vessels take refuge in Xerolimni, a small cove on the northwestern side in a position 1,800 yards northeastward of Cape Ieri.

2-123 Coast.—From Cape Nikolaos, located 1 mile east-southeastward of Cape Vurlia, the coast trends about 2¾ miles eastward and then turns southward for one-half of a mile to Kartero Point. In Saundy (Karteros) Bay, northward of Kartero Point, the 5-fathom curve is as far as 500-yards offshore, and foul ground fringes Kartero Point.

Shoal.—A 29-foot shoal lies 1 mile east-southeastward of Cape Nikolaos and 600 yards offshore.

2-124 Port Kiladia (Koiladhi Bay), (37° 25' N., 23° 07' E., *H.O. Chart 4114 and H. O. Chart 4115*), located 1 mile southward of Kartero Point, recedes 1½ miles in a southeasterly direction and has an average width of one-half of a mile. This bay is almost

landlocked, as Kiladia (Koiladhi) Islet, 79 feet high, lies in the entrance. The anchorage area, a short distance within the islet, has depths of 5 to 8 fathoms, mud, but farther southeastward, abreast the customhouse, monastery, and jetties, the depths are under 3 fathoms and decrease toward the head.

To reach the anchorage, vessels generally use the channel southwestward of Kiladia Islet. This channel has a width of 500 yards, and vessels should give the islet side a berth of 275 yards. The channel eastward of the islet can be used only by day. It is shorter, clearer of shoal water, and also 500 yards wide.

A submarine cable extends northeastward to Kiladia Islet from a point on the shore about 440 yards southeastward of Cape Kokkino. Anchoring and fishing are prohibited within 100 yards on either side of the cable.

Skala Kranidi, the settlement on the southwestern shore of Port Kiladia is one of the ports for the town of Kranidi (Kranidhion), located at an elevation of 627 feet about 2 miles southeastward of the port. The town has a population of about 4,200.

A light is exhibited from a column on Cape Kokkino, the western entrance point of Port Kiladia.

2-125 Coast.—Between Cape Kokkino and Cape Thynni (Dhini) (Tsini), 3 miles southwestward, the coast recedes southeastward to form a bight. Shoal depths extend as far as 400 yards from the eastern shore of the bight. At the head of the bight is the point of Agios Spyridona (Ayios Spiridhon), and just north of the point is an inhabited cove, where good water can be obtained.

From Cape Thynni the coast, irregular and rather precipitous, trends 2½ miles southward to Cape Koraka, the northwestern limit of Vevaronda Bay. Koraka Islet, 535 feet high, with a much smaller islet off its western side, lies one-half of a mile northward of Cape Koraka and is separated from the coast by a boat channel. These two islets, together known as Korakonisia, have sunken rocks lying as far as 300 yards from

them, and sunken rocks also extend over 200 yards westward from Cape Koraka.

Light.—A light is exhibited from a white iron tower, 17 feet high, on Cape Koraka.

Shoal.—A 16-foot patch lies about 600 yards southward of Cape Thynni and the same distance offshore.

2-126 Vevaronda Bay (Ormos Veverentzas) ($37^{\circ}20' N.$, $23^{\circ}07' E.$, *H. O. Chart 4115*) recedes eastward about 3 miles from Cape Koraka. Cape Vevaronda (Vaveronda), the southeastern limit of the bay, is located $2\frac{1}{4}$ miles southeastward of Cape Koraka. The 5-fathom curve is about 400 yards off the northern shore, which is rather precipitous, and the same curve is one-half of a mile off the eastern shore or head of the bay, where there are salt works and warehouses.

Coast.—From Cape Vevaronda the coast trends $1\frac{1}{2}$ miles southeastward to the northwestern entrance point of Port Kheli. It is indented by numerous small inlets, and the water is deep not far offshore.

2-127 Port Kheli (Portokheli) ($37^{\circ}19' N.$, $23^{\circ}09' E.$, *H. O. Chart 4115*), located at the western end of the northern side of the Strait of Spetsai, consists of an entrance channel opening out into a round basin. The channel having a width of 800 yards in its outer part and 400 yards in its inner part trends nearly 1 mile in a northeasterly direction. The northwestern side of the channel is indented by two small bays; Alexandro Bay, the southwestern one, has a depth of $4\frac{1}{2}$ fathoms in its inner part, while Laspo Bay, the northeastern one, is shallow. About midway between these two bays stands a conspicuous building (damaged), where a telegraph cable from Spetsai Island is landed. The southeastern side of the entrance channel is also indented by several small shallow bays, and at the inner end

rises a hill, 174 feet high, northward of which are the ruins of Mazes (Alia) (Alikí).

Kaluirí (Kaloyeros) Rock, marked by a white stone beacon, 13 feet high, lies close off the outer southern entrance point of Port Kheli. When in range, the three projecting points on the southeastern side of the entrance channel lead northwestward of this rock.

A light is exhibited from an iron column on a hut, the whole 20 feet high, located on the outer northwestern entrance point of Port Kheli.

2-128 Anchorage.—The 3-fathom curve is not over 100 yards offshore on either side of the entrance channel, but it is about 600 yards offshore in the basin, leaving an area with a diameter of 600 yards where large vessels can anchor in a depth of 5 fathoms, stiff mud.

The inner part of the entrance channel affords anchorage to large vessels in a depth of 5 to 6 fathoms, mud and weeds.

Tides and current.—The maximum tidal range is 1 foot. During northerly and westerly winds a current of $\frac{1}{2}$ to $\frac{3}{4}$ knot sets inward through the entrance channel.

Wreck.—The *Thraki*, a 3,000-ton water tanker, lies stranded 400 yards off the eastern shore of the basin.

2-129 Leonidion (Portokheli), a village of 700 inhabitants, is located on the western shore of the basin of Port Kheli. It is the port for the town of Kranidi, already mentioned with Port Kiladia. Provisions in abundance are obtainable at Kranidi. The village has a customhouse, and postal and telegraphic facilities. Coastal steamers make regular calls.

Piers.—The town pier, located about 600 yards north of the entrance channel, has a length of 51 feet, and depths of 6 feet off its head.

There are two other small piers.

2-130 Spetsai (Spezzia) Island (*H. O. Chart 4115*), located on the eastern side of the entrance to the Gulf of Nauplia and separated from the mainland to the northward by the Strait of Spetsai, has a length of 4

miles in a northwesterly and southeasterly direction and a maximum width of $2\frac{1}{4}$ miles. Islets and rocks lie off both the northwestern and southeastern ends of the island. Extending the length of the island is a chain of hills, near the middle of which rises Mount Elias, 815 feet high, surmounted by a small church. Some parts of the island, especially the western one, are wooded. Although the soil is not fertile, grapes, almonds, figs, and carob beans are raised in small quantities. The climate is exceedingly healthy. Most of the inhabitants, a large part of whom reside in the town of Spetsai, are engaged in navigation and fishing.

2-131 Coasts.—The southwestern coast is precipitous, and in a small cove about midway along this part of the island is located Ayia Paraskevi. Another small cove indents the western end of the southern coast, which forms the northern side of Pulo Strait; shallow depths extend 200 yards southward from the eastern entrance point of this cove. Projecting from the uninhabited eastern coast are several points having foul ground extending as far as 300 yards offshore. The northern coast has shallow depths as far as 200 yards offshore, and the 5-fathom curve is 300 yards offshore in places. Zoyloryia Bay, near the western end of this coast, is used during easterly and southerly winds by local steamers, which keep clear of the eastern entrance point and the head because of a sunken rock and shallow depths. A description of Spetsai Bay, where is built the town of the same name, precedes that of the Strait of Spetsai.

2-132 Off-lying islets and dangers.—Bromboli (Brouboulo) (Petrokáravo), a small conical rock or islet, 72 feet high, lies 1,300 yards northwestward of the northwestern extremity of Spetsai Island. A rock just above water lies 400 yards south-southeastward of Bromboli, and about 100 yards eastward of this rock is another rock with 6 feet of water over it.

A rocky shoal with a depth of 4 feet on it lies 300 yards westward of the northwestern extremity of Spetsai Island, and is separated from the two above-mentioned rocks by a

deep channel with a width of 600 yards. A depth of 6 fathoms lies about 200 yards westward of this shoal; in the narrow channel to the eastward are depths of 3 to 7 fathoms.

A light is shown from an iron column, 7 feet high, on Bromboli.

Spetsai (Spezzia) Pulo (Spetsopoula), an islet $1\frac{1}{4}$ miles long in a southeasterly and northwesterly direction, lies southeastward of Spetsai Island, from which it is separated by Pulo Strait. The northwestern, southwestern, and southern sides, with some rocks above and below water near them, are bordered by deep water, but the 5-fathom curve is as far as 400 yards off the northeastern side. About 800 to 1,200 yards northeastward of the eastern half of the islet are a group of two small islets and rocks, above and below water. The islets are named Mikro and Joannis (Ayios Ioannis), and a chapel stands on the latter islet.

Pulo (Spetsopoula) Strait has a width of 600 yards and depths of 7 to 6 fathoms, but shallower depths and a 1-fathom rocky reef extend as far as 200 yards from the Spetsai Island side of the strait.

Papachristos (Papakhristos) Rock, a small but dangerous reef with a depth of less than 6 feet, lies in the northeastern approach to Pulo Strait in a position 650 yards eastward of the southeastern extremity of Spetsai Island.

2-133 Spetsai Bay (Port Balkisa) (Port Baltiza) ($37^{\circ}16' N.$, $23^{\circ}10' E.$, *H. O. Chart 4115*), located immediately westward of Point Phanari (Fanari), the northeastern point of Spetsai Island, recedes about 600 yards in a southerly direction. The bay is about 275 yards wide in the entrance, but narrows considerably toward the head. In the middle of the entrance the depths are 26 feet, but toward the head they lessen to 6 and 4 feet. On the western side of the approach and about 150 yards offshore lies a rock with a depth of 6 feet. This bay is used by small sailing vessels, which put alongside the embanked western side.

A small boat harbor with depths of 6 feet is formed by two breakwaters at the middle

part of the town. As the sides of the breakwaters have rocks projecting from the foundations, boats should not approach them too closely. The eastern breakwater has landing steps. A small pier is in the vicinity.

About 100 yards westward of Point Phanmari light is a stony jetty which projects in a north-northeastly direction for about 66 feet.

Lights.—A light is shown on Point Phanmari, and on the head of the jetty close westward. Another light is shown about $\frac{3}{4}$ mile west-northwestward of Point Phanari. Akra Mavrokavos (Kavos Liano), from which a light is shown, lies about $\frac{3}{4}$ mile southward of the head of Spetsai Bay.

Two parallel submarine cables extend in a south-southeasterly direction from a point about 1,100 yards southwestward of Akra Mavrokavos to the coast of Spetsai Pulo. Anchoring, fishing and dredging are prohibited within 300 on either side of the cables.

A stranded wreck lies about 320 yards southward of the light.

2-134 Anchorage.—Large vessels anchor three-fourths of a mile northwestward of the lighthouse and one-fourth of a mile offshore in depths of 12 to 15 fathoms, mud, sand, and coral, good holding ground. If necessary, vessels can anchor farther offshore.

2-135 Spetsai, where is centered almost the entire population of the island (about 3,600), commences at Spetsai Bay and extends for a distance of 1 mile along the northern coast of the island. The town consists of small houses and narrow streets, and only along the water front are several large buildings, of which Posidhonion Hotel stands near the boat harbor, and a conspicuous school stands at the western end of the town.

Provisions are available in limited quantities. The town has customs, postal, and telegraph facilities. Coastal steamers make regular calls.

2-136 Strait of Spetsai (Spezzia), separating the northern side of Spetsai Island from the mainland, has a minimum width of 1 mile and a least depth of 14 fathoms in the fairway. This strait is used by local vessels navigating between the Gulf of Nauplia and Piraeus. Several dangers lie along the northern shore of the strait, which must be given a safe berth, and in the eastern approach to the strait are two dangerous shoals.

2-137 Northern side of strait.—Chenesar

(Khinitza) Islet, 30 feet high and 600 yards long in an east and west direction, lies 800 yards southward of the southern entrance point of Port Kheli, and fronts a shallow bay open to the westward. Both the northern and the southern side of this islet are indented by a cove available for small craft. The northern cove has a rocky bottom. A rock with a depth of 8 feet lies about 100 yards off the southwestern side of Chenesar Islet.

A detached rocky patch with $3\frac{3}{4}$ fathoms of water over it lies 1,200 yards southeastward of Chenesar Islet and 400 yards off-shore.

A prohibited anchorage area extends across the Strait of Spetsai from about 1 mile northwestward to 1 mile southeastward of Chenesar Islet.

Temporary anchorage, sheltered from northerly winds, may be taken in the entrance to the bay located $1\frac{1}{4}$ miles southeastward of Chenesar Islet. The depth in the entrance is over 5 fathoms, sand. The sandy beach of this bay is frequented by bathers from Spetsai.

A promontory separates the above-mentioned bay from the bay indenting the coast westward of Cape Milianos. Depths of $2\frac{1}{2}$ fathoms lie as far as 300 yards southward of the eastern extremity of this promontory; the southern extremity of the islet of Karteli in range with the northern extremity of the islet of Trikeri, bearing 090° , leads southward of them.

The coast westward of Cape Milianos recedes gradually northward for a distance of one-half of a mile to form a bay. Depths of less than 3 fathoms extend 400 yards from the head of the bay, where lies an islet, 6 feet high. The area about this bay is named Metokhi, and some houses stand on the western shore.

2-138 Cape Milianos (Ayios Aimilianos) ($37^\circ 17' N.$, $23^\circ 12' E.$, *H. O. Chart 4115*), the northeastern limit of the eastern entrance to the Strait of Spetsai, is a white, steep, rocky point with a church on it. Rocks above and below water extend 400 yards southward from the point.

Milianos Shoal, a small, steep-to, rocky patch with a depth of $3\frac{3}{4}$ fathoms, lies $1\frac{1}{4}$ miles southward of Cape Milianos.

Trikeri Shoal, another rocky patch with a depth of 16 feet, lies $2\frac{1}{4}$ miles southeastward of Cape Milianos.

2-139 Clearing marks.—Mount Eros, the summit of Hydra Island, bearing 072° and seen about midway between the islet of Trikeri and the island of Petasi, leads southward of Milianos Shoal and northward of Trikeri Shoal.

Point Mezzo (Metzo), the southeastern extremity of Spetsai Pulo, bearing 210° and seen midway between the islets of Mikro and Joannis, leads eastward of Milianos Shoal and westward of Trikeri Shoal.

The islet of Alexandro, bearing 087° and well open northward of the islet of Trikeri, leads northward of Milianos Shoal.

The islet of Drapi, bearing 084° and well open southward of the islet of Trikeri, leads southward of Trikeri Shoal.

Mount St. Elias (Ayios Ilias), 1,118 feet high, located $6\frac{1}{2}$ miles north-northwestward of Cape Milianos, kept open either westward or eastward of the church on the cape, leads, respectively, westward or eastward of Milianos Shoal.

2-140 Directions.—Large vessels proceeding through the Strait of Spetsai should avoid too near an approach to either shore, but should keep to the axis on a course of 120° – 300° . The rocks at Cape Milianos are of concern to all vessels when near that vicinity. Vessels depend solely on their estimate of their distance from this cape, which should not be less than one-half of a mile. A similar distance should be maintained off the coast northward of the cape.

A vessel proceeding southeastward through the strait and bound for Hydra Bay can commence turning to port when the northern point of Trikeri Islet begins to

cover a part of Karteli Islet. The turn should be so regulated that Alexandro Islet is always open northward of Trikeri Islet. This latter safeguard against Milianos Shoal should be observed until the church on Cape Milianos is in range with Mount St. Elias.

A vessel can also proceed farther southeastward through the strait until Mount Eros bears 072° and is seen midway between Trikeri Islet and Petasi Islet; thence a course of 072° for Mount Eros leads between Milianos Shoal and Trikeri Shoal. At night or during poor visibility a vessel should not hesitate to pass close southward of Trikeri Islet. Having passed the light at Spetsai Bay, continue on a southeasterly course for a distance of 2 miles, and change course for Trikeri Islet as soon as it bears less than 090° .

A vessel approaching the strait from the southward will find that most of the clearing marks for the dangers are astern and difficult, even impossible, to follow. For this reason, a large vessel will find it safer to pass south of Trikeri Islet. From the southwesterly point of this islet, steer a westerly course until the church on Cape Milianos comes in range with Mount St. Elias; thence change course for the entrance of the strait.

2-141 HYDRA (YDRA) (IDHRA) ISLAND (*H. O. Chart 4115*), which forms the greatest part of the southern side of Hydra Bay, lies $7\frac{3}{4}$ miles eastward of Cape Milianos, the intervening water with scattered islets forming the southern approach to Hydra Bay. This large island extends $10\frac{3}{4}$ miles in an east-northeasterly and west-southwesterly direction, and has a maximum width of $2\frac{1}{2}$ miles at its middle part. The surface of the island, rocky, bare, and sterile, rises to form several peaks, of which the highest is Mount Eros, 1,935 feet high, located near the middle of the island. The

rugged and irregular coast has considerable depths near it in most places, especially at the eastern end of the island. Besides the islets in the southern approach to Hydra Bay, several rocky islets lie close off the western half of the northern coast (described with Hydra Bay), and Stavro Islet, with a dangerous rock southward of it, lies several miles southward of the western half of the island.

The population of the island approaches 3,500 inhabitants, most of whom reside in the town of Hydra. Most of them are engaged in sponge fishing, while a few are engaged in commercial navigation and in raising cattle. Agricultural products raised are insignificant, and most of the food is imported from Piraeus. The island lacks water. Although most of the island is treeless, limited areas are covered with fruit trees (figs, olives, and almonds), and some pine trees.

Southern side of Hydra Island.—This side of the island is of no interest to navigators. The coast for its entire length is rocky and precipitous. The depths are too great for anchoring, and the bays are open for the most part.

2-142 Coast.—Cape Bisti ($37^{\circ}18' N.$, $23^{\circ}22' E.$, *H. O. Chart 4115*), the western extremity of Hydra Island, is steep-to. Between this cape and Ayios Konstandinos Point, $1\frac{1}{2}$ miles eastward, the coast is indented by four small bays, which are used by small fishing vessels. Located off the point dividing the two eastern bays and separated from it by a narrow channel with a depth of 7 fathoms is the steep-to islet of Ayios Nikolaos.

Nisiza Point is located 2 miles east-northeastward of Ayios Konstandinos Point, and $3\frac{1}{4}$ miles farther in the same direction is Cape Rigas. About midway between Nisiza

Point and Cape Rigas and 700 yards offshore lies the small islet of Nisiza.

Dimionizza (Limnioniza) Bay, located over 1 mile northward of Cape Rigas, is open to the south and southeast, and has an islet lying close off its head. The bay is of no value to shipping.

2-143 Cape Zurva (Zourva) ($37^{\circ}22' N.$, $23^{\circ}35' E.$, *H. O. Chart 4115*), the eastern extremity of Hydra Island and the southern entrance point of the eastern entrance to Hydra Bay, is precipitous and craggy, and has deep water close offshore. This cape is near the track of vessels bound from Cape Malea to the Gulf of Athens.

Cape Zurva Light is exhibited from a square tower on a dwelling, the whole 36 feet high.

2-144 Off-lying islet and danger.—Stavro Islet, located 3 miles southward of the western half of Hydra Island, has a diameter of one-half of a mile. This high and rocky islet is surrounded by deep water except for two rocks above water close off its southwestern point.

Stavro Rock, a small, steep-to rock with only 3 feet of water over it, lies 1,400 yards south-southwestward of Stavro Islet.

2-145 Clearing marks.—The northern peak of the islet of Trikeri in range with the islet of Strongilo, bearing 281° , leads southward of Stavro Rock; the northern side of Spetsai Island bearing more than 281° and open southward of the islet of Trikeri leads also southward of the rock.

Mount Eros, the summit of Hydra Island, bearing 014° and open westward of Stavro Islet, leads westward of Stavro Rock, while the same summit bearing 004° and open eastward of Stavro Islet leads eastward of the rock.

2-146 SOUTHERN APPROACH TO HYDRA BAY.—Trikeri ($37^{\circ}16' N.$, $23^{\circ}17' E.$,

H. O. Chart 4115), one of several islets in this approach having a width of $9\frac{1}{2}$ miles between Spetsai Island on the west and Hydra Island on the east, is the westernmost, largest, and most conspicuous. Lying about 4 miles west-southwestward of the western extremity of Hydra Island, this islet, having a length of 1 mile in a north and south direction, consists of a northern and a southern part united by a low isthmus. Each part rises to a hill, the southern one having a height of 490 feet.

Strongilo, a small conical islet, lies $1\frac{1}{2}$ miles eastward of the southern part of **Trikeri**. **Drapi** (**Dhrapi**) and another unnamed islet lie close westward of **Strongilo**, and all three islets are surrounded by deep water.

A 23-foot shoal lies $\frac{1}{2}$ mile northeastward of **Strongilo**, and one-half of a mile farther in the same direction is a 7-fathom patch.

Karteli, another small islet, lies $1\frac{1}{2}$ miles northeastward of **Strongilo**. A 29-foot shoal lies 300 yards northward of the islet, and depths of 2 fathoms extend a short distance northward from the islet.

2-147 Ventza and Disaki (Dhisaki) are two small islets lying three-fourths of a mile, respectively, east-northeastward and south-eastward of **Karteli**. Both islets are surrounded by deep water; however the passage between them is obstructed by a shoal with a least depth of 2 fathoms, but a narrow fairway with a depth of 6 fathoms is available close off the southwestern point of **Ventza**. **Disaki** consists of two parts separated by a narrow passage.

Alexandro, only surpassed by **Trikeri** in size, lies one-half of a mile northward of **Ventza** and the same distance southward of the western end of Hydra Island. This islet is surrounded by a bank with depths of 13 to 42 feet.

2-148 Western side of the southern approach.—Between Cape Milianos (sec. 2-138) and Cape Muzaki (**Mouzaki**), 5 miles northeastward, the coast of the mainland recedes $2\frac{1}{2}$ miles northwestward to form a bay, named **Kranidhion Bay**. Along the shores of this uninhabited bay the 5-fathom curve with rocks inside it is 400 yards off-shore, but this same curve is $\frac{1}{2}$ mile off the low shore at the head of the bay. Extending 600 yards eastward from the western shore about 1 mile northward of Cape Milianos is a shallow rocky bank, and on this bank is **Tigani Islet**, 72 feet high.

A light is exhibited from an iron column and hut, the whole 16 feet high, on Cape Muzaki.

2-149 Dhokos (Dokos), a large island located in the northern part of the southern approach to Hydra Bay, is separated by **Dhokos Strait** from Cape Muzaki to the west and by **Petasi Strait** from Hydra Island to the southeast. This mountainous and rocky island has a length of 4 miles in an east and west direction, a maximum width of $1\frac{1}{2}$ miles, and a height of 961 feet at its eastern end. The high and precipitous coasts are steep to except for two shoals mentioned with **Skindo Bay**.

Skindo Bay indents the northern coast of the eastern half of **Dhokos** to a distance of 1 mile in a southerly direction. The bay affords anchorage in depths of 23 to 7 fathoms, firm bottom, and this anchorage is not seriously affected by northerly winds. Both the western and the eastern shore are indented by coves, the western cove having a small settlement and repair facilities for wooden sailing vessels.

A reef, with depths of 13 to 29 feet over it, lies in the northern approach to the western cove, and a reef with 13 feet over it lies 200 yards northward of the eastern entrance point to **Skindo Bay**.

A light is exhibited from a white tower, 29 feet high, attached to a dwelling on the southeastern point of Dhokos Island.

2-150 Dhokos (Dokos) Strait, separating the western end of Dhokos from Cape Muzaki, has a width of 800 yards, being the narrower of two entrances into Hydra Bay from the south. Extending in a northeasterly and southwesterly direction, the strait has deep water and is clear of dangers. The wind is almost always baffling, and calms are frequent.

2-151 Petasi Strait, separating the eastern end of Dhokos from the western end of Hydra Island, leads into Hydra Bay from the south. Extending in a northeast and southwest direction, the strait has a width of 1 mile and considerable depths. The northern side of the strait is recommended during night transits. Two islets, described with the northern side of Hydra Island, lie on the southeastern side of the strait. The wind conditions are the same as those in Dhokos Strait. Sometimes the current sets eastward against fresh northeasterly winds.

2-152 HYDRA (YDRA) (IDHRA) BAY (*H. O. Chart 4115*), the name given to the large body of water between the islands of Dhokos and Hydra on the south and the shore of the mainland to the west and north, is entered from the south through either Petasi Strait or Dhokos Strait, and from the east between Cape Zurva (sec. 1-143) and Cape Skyli, 5 miles north-northwestward. The bay is clear of dangers except for a shoal close off the northern shore within the eastern entrance and some shoals in the westernmost part. At night vessels should not approach the northern coast of the western half of Hydra island, along which are numerous islets.

2-153 WESTERN AND NORTHERN SIDES OF HYDRA BAY.—Port Kuverta

(Kouverta) (*37°21' N., 23°15' E., H. O. Chart 4115*), entered between Cape Muzaki and Cape Steno, $1\frac{1}{2}$ miles northwestward, recedes about 1 mile in a westerly direction and has depths of 20 to 5 fathoms, the latter depth being found as far as 400 yards offshore at the head of the bay. The bay is sheltered by high land from the south.

Foul ground lies about $\frac{1}{2}$ mile southward of Cape Steno.

Kappari (Kapari), a small islet, lies 400 yards east-southeastward of Cape Steno. Depths of less than 5 fathoms extend about 400 yards eastward from Cape Steno, and similar depths fringe the western side of the islet. Between these depths is a narrow fairway extending in a northeasterly and southwesterly direction and having a depth of 6 fathoms.

Rocks above water extend over 400 yards east-northeastward from Kappari, and 800 and 1,800 yards east-northeastward of the islet lie, respectively, two reefs with depths of 16 and 29 feet over them. The northeastern extremity of the islet of Trikeri in range with the western extremity of the island of Dhokos, bearing 175° , leads 200 yards westward of the 5-fathom patch, while the western extremity of Dhokos bearing 186° or more leads eastward of all the dangers. On this last course Trikeri is completely hidden by Dhokos.

2-154 Port Kappari, the entrance of which is 1 mile wide between Cape Steno on the south and Cape Kastri on the north, recedes $1\frac{1}{2}$ miles in a westerly direction and has in its inner part depths of 13 to 8 fathoms. The 5-fathom curve is about 800 yards off the low sandy shore at the head. Cape Kastri is the eastern extremity of a narrow, low tongue of land projecting 1,600 yards in an easterly direction. On this tongue are the ruins of ancient Hermioni, while at the

base of the tongue stands the present town of Ermioni.

The southern part of Kappari Bay affords anchorage in depths of 13 to 8 fathoms. The best berth is 500 yards north-northwestward of a small peninsula projecting from the southern shore. The bottom is firm sand, good holding ground.

A light is exhibited from an iron column and hut, the whole 20 feet high, on Cape Kastri.

2-155 Port Kastri, a small inlet suitable only for small vessels, is located on the northern side of the tongue of land terminating in Cape Kastri. Receding 1,200 yards in a westerly direction, the port has a width of 400 yards and depths of $3\frac{3}{4}$ to $2\frac{3}{4}$ fathoms in the outer part.

A light is shown from the head of the mole at Port Kastri.

2-156 Ermioni, sometimes called Kastri, is a town of about 2,600 inhabitants. It is an important port for serving the inland town of Kranidi. The neighboring area produces considerable quantities of olives, cereals, and almonds. The town has customs, postal, and telegraphic facilities, and coastal steamers make regular calls.

The larger of two moles in Port Kastri, used by small steamers, has a length of 328 feet, a width of 40 feet, and a depth of 9 feet at the head and of 6 feet along the sides. The smaller mole, 230 feet long and 23 feet wide, protects the harbor from silt brought down by a stream.

2-157 Coast—Anchorage.—Immediately eastward of Port Kastri the northern shore of Hydra Bay recedes 1 mile northward to form Thermisi Bay. This bay has depths of 24 to 12 fathoms, and the 5-fathom curve is 400 yards off the low shore at the head, where there is a small rocky islet.

A dangerous wreck lies a little over $\frac{1}{2}$ mile northeastward of the light on Cape Kastri.

A mooring buoy is moored about 200 yards off the eastern shore of Thermisi Bay.

A light is shown from the head of a dock about $1\frac{1}{2}$ miles northeastward of Cape Kastri light.

Cape Thermisi, located $2\frac{1}{4}$ miles eastward of Port Kastri, is the termination of a spur from Mount Didyma (Dhidhimon Oros), 3,651 feet high, located $7\frac{1}{4}$ miles northwestward in the interior. From Mount Didyma

a high mountainous range trends eastward to Cape Skyli.

Between Cape Thermisi and Cape Skyli, $10\frac{1}{2}$ miles eastward, the northern shore is low and fringed by a steep-to coastal bank extending offshore for a distance of 200 to 400 yards. On this coastal bank in a position $1\frac{3}{4}$ miles west-southwestward of Cape Skyli lies the small island of Supia (Sipia). About 900 yards west-southwestward of Supia and 800 yards offshore lies a detached rocky shoal with a depth of 14 feet. About midway between Cape Thermisi and Cape Skyli is Cape Metókhi, a low, projecting, shingle point. A short distance northeastward of this point stands an old monastery (large white building), and 1 mile west-northwestward of the same point is seen a small chapel. Vessels navigating at night along this coast should remain outside the 40-fathom curve between the islet of Supia and Cape Metókhi; between the latter point and Cape Thermisi, they should remain outside the 30-fathom curve.

A submarine cable extends south-southeastward to Hydra Island, from about $\frac{1}{2}$ mile northeastward of Cape Metokhi. Anchoring and fishing are prohibited within 600 feet of the cable.

Safe anchorage is available in the vicinity of the above-mentioned low shingle point. A good berth is in 19 fathoms with the point bearing 086° and the small chapel 000° . During the winter the northeast wind blows sometimes with violent blasts from the high land.

2-158 Cape Skyli (Skillaion) ($37^\circ 26' N.$, $23^\circ 32' E.$, *H. O. Chart 4115*), the eastern termination of a mountainous range, is the northern entrance point of the eastern entrance to Hydra Bay, as well as the southwestern entrance point of the Gulf of Athens.

Kelevini (Tselevinia) Islets, two in number, extend $1\frac{1}{4}$ miles in an east-northeasterly direction from the southern side of Cape Skyli. Skilli, the eastern islet, is separated from Izelleria (Spathi), the western islet, by a clear passage with a least depth of 8

fathoms and a minimum width of 200 yards. Izelleria is connected to the cape by a reef covered with less than 6 feet of water, and a reef extends 400 yards southward from the middle part of the southern side of Skilli.

A light is shown on the northeastern end of Skilli.

2-159 NORTHERN SIDE OF HYDRA ISLAND—Coast—Islets.—From the western extremity of Hydra Island the slightly irregular coast with deep water near it trends $2\frac{1}{2}$ miles east-northeast to Port Molos, a small bay with sufficient depths for small vessels. A large part of this coast forms the southeastern side of Petasi Strait. South of Port Molos a deep rocky gorge extends southward almost to the southern coast of the island.

Petasi, a small islet, lies on the southeastern side of Petasi Strait, and is separated from Hydra Island by a narrow but deep channel available for small vessels with local knowledge. The smaller rocky islet of Pontiko lies about 500 yards west-southwestward of Petasi.

Kivotos, two islets lying close together and surrounded to a distance of less than 200 yards by depths of less than 5 fathoms, lie 400 yards northwestward of Port Molos. About 400 yards westward of the southwestern Kivotos Islet is the smaller and steep-to rocky islet of Erimo. All three islets are separated from Hydra Island by a deep channel, but along Hydra Island southward of the southwestern Kivotos Islet the 5-fathom curve is 200 yards offshore and has rocks within it.

The small rocky islet of Palamidha lies 1,800 yards east-northeastward of Kivotos Islets and 400 yards off Hydra Island, from which it is separated by great depths. About one-half of a mile west-northwestward of Palamidha is a steep-to 8-fathom patch.

Vlikos, a small rocky islet, lies 1 mile northeastward of Palamidha and 600 yards off Hydra Island, from which it is separated

by depths of 13 to 23 feet. Kamini, another small rocky islet with depths of less than 5 fathoms extending as far as 200 yards offshore, lies 800 yards east-northeastward of Vlikos and less than 600 yards off Hydra Island, from which it is separated by depths of 13 to 23 feet. On the islet stands a conspicuous small church, and not far eastward is the town of Hydra.

A light is shown from a position on shore about $\frac{1}{4}$ mile southeastward of Kamini.

2-160 Port Hydra (Idhra) ($37^{\circ}21'N.$, $23^{\circ}28'E.$, *H.O. Chart 4115*), is a small harbor formed by a breakwater extending about 130 yards eastward from the western shore near the head of the bay and a small breakwater on the eastern side of the bay. The entrance is 50 yards wide.

The depths in the bay outside the breakwater are too great for anchoring. Coastal vessels making regular calls remain under-way or secure to a mooring buoy in the bay.

Lights.—A light is exhibited from an iron framework structure and tower, the whole 20 feet high, on the eastern entrance point of Port Hydra.

A light is shown on the head of the pier on the western side of the harbor. A light is shown on the head of each of the breakwaters.

2-161 Hydra (Idhra) is built like an amphitheatre along the sides of four hills bordering Port Hydra. The town has numerous churches and monasteries, and the houses are large for the most part. Most of the inhabitants of the island reside in the town. Provisions in limited quantities are available, but the water supply is deficient. The town has postal, customs, and telegraphic facilities; coastal steamers make regular calls.

The southern side of the breakwater has depths of 26 feet alongside, and about 30 yards further southward the depths are 16 feet. A pier extends east-southeastward from the western side of the inner harbor; having a depth of 6 feet at the head, it is available only for coasters. A pier on the eastern side of the harbor has depths of 16 feet alongside. It is protected from northward by a small breakwater, 82 feet long. Vessels moor alongside the breakwater. The entire shore of the inner harbor is quayed.

2-162 Port Mandraki, the bay entered about 1,400 yards eastward of Port Hydra, recedes nearly 600 yards in a southeasterly direction from its entrance having a width of 400 yards. The bay has depths of 27 to 11 fathoms, the 5-fathom curve being about 100 yards off the low sandy shore at the head, where are located shipyard facilities for sailing vessels. Deep water is found close to the northeastern and southwestern sides, both of which are precipitous. Vessels must avoid anchoring on two 10-fathom patches near the southwestern side; one is located 300 yards westward of the eastern entrance point, and the other is 250 yards southwestward of the same point. An old battery is located on each entrance point, and several conspicuous churches are seen at this port.

2-163 Coast.—From Port Mandraki the northern coast of Hydra Island, with deep water near it, trends $4\frac{3}{4}$ miles in a general easterly direction to Cape Zurva, the eastern extremity of the island. It is indented by several bays, the two largest being Panayia Bay, 2 miles westward of Cape Zurva, and Zoodhokhos Piyi, immediately westward of

the cape. The great depths in both bays make them unsuitable for anchorage.

Winds.—During strong northeasterly winds Hydra Bay, on account of the neighboring high land, is subject to heavy squalls from all directions. It often happens that the sea breeze, which blows from eastward through Hydra Bay, abates just as it reaches the island of Dhokos.

2-164 Currents.—The currents between the islands and the mainland, as well as outside the islands, depend principally upon the force and direction of the winds. It often happens, however, that the land and sea breezes in the summer cause great variations in the currents; the land winds out of the Gulf of Nauplia and Athens necessarily cause eddy currents in the vicinity of Spetsai and Hydra, both in the channel within and outside the islands. To this may be ascribed, about halfway between the eastern end of Hydra Island and Stavro Islet, a ripple occasioned by the meeting of the two currents, which generally appears at intervals between the land and sea breezes, and which before now, here and elsewhere, has been taken for shoal water.

CHAPTER 3

GREECE—GULF OF ATHENS

3-1 GULF OF ATHENS (SARONIKOS KOLPOS) (*H. O. Chart 4120*), about 27 miles wide in the entrance between Cape Skyli (Akra Skilliaion) on the southwest and Cape Colonna on the northeast, recedes about 45 miles in a general northwesterly direction. In this large gulf are the large islands of Poros, Ægina, and Salamis and a considerable number of smaller islands, and along the shores are formed numerous bays and anchorages. The gulf has heavy traffic: first, the port of Piræus (close to Athens, the capital and largest city of Greece) is the starting point for most Greek steamship lines and the port of call for many foreign lines; second, the Corinth Canal at the northwestern recess of the gulf is used by passenger vessels and small cargo vessels bound to or from the Ionian Sea and the Adriatic Sea.

3-2 Tides and currents.—The tides in the Gulf of Athens are very slight, and changes in the level of the water are due principally to meteorological causes, southerly winds raising the level and northerly winds lowering it.

The currents do not attain great velocities. The set of the current is toward the west along the eastern and northern shores and toward the east along the western shore.

3-3 Agios Georgios (Ayios Yeoryios) (Belvina) (*37°29' N., 23°54' E., H. O. Chart 4120*), the island located 18 miles eastward of Cape Skyli, is near the middle of the southern approach to the Gulf of Athens. This rocky island extends about 3 miles in a general northwesterly and southeasterly direction and attains a height of 1,080 feet in its southern part. The precipitous coast does not present any dangers, the 5-fathom curve being about 400 yards offshore. A wreck lies

about 3/4 mile south-southeastward of the western extremity of the island. A group of small islets or rocks extend as far as 1/4 mile southeastward of the southeastern end of the island. A small islet lies within this curve off the southeastern point of the island. Parts of the island are used for grazing.

A light is exhibited from a white iron tower on a concrete building, the whole 23 feet high, on the southeastern point of the island of Agios Georgios.

A dangerous wreck is located about 2 miles 302° from the light mentioned above.

A submarine exercise area, 12 miles square, has its center about 10 miles south of Agios Georgios.

3-4 WESTERN SIDE OF THE GULF OF ATHENS.—POROS ISLAND (*Eastern extremity, 37°31' N., 23°32' E.*), the southern side of which is located 4 miles northward of Cape Skyli, has an irregular shape, as a peninsula extends from both the northern and southern sides. This mountainous and pine-covered island extends 4 1/4 miles in an east and west direction, and in its eastern part attains a height of 1,178 feet in the peak of Viglio (Vigla). About 1 mile westward of Viglio is Ayios Nikolaos, 984 feet high, and midway between these two peaks are the ruins of the temple of Juno (Poseidon). On the southern side of the island are some small areas of fruit trees and cultivated ground.

Poros (Sphaeria) Peninsula, extending from the middle part of the southern side of Poros Island first in a southerly direction and then in a southeasterly direction, has a total length of three-fourths of a mile, and separates Poros Bay on the east from Poros Harbor on the west. The peninsula is con-

nected to the island by a low and narrow isthmus, through which a boat channel has been cut, and the southwestern side of the peninsula is separated from the mainland by Poros Strait.

3-5 Landmarks.—Conspicuous marks on the peninsula are a windmill on the summit, a church within Stavros Point, its southeastern extremity, and the clock tower in the town of Poros, built along its southwestern and western sides.

3-6 Poros Bay (Ormos Porou), together with its approach, is limited on the north by the eastern part of the southern side of Poros Island, on the southwest by the coast of the mainland, and on the west by Poros Peninsula. The depths are considerable except for Mavrocordato Shoal, and the 5-fathom curve is 400 yards offshore at the head. Numerous islets lie close off the southwestern shore, where the 5-fathom curve is about 200 yards offshore. The northern shore, rather precipitous, has deep water near it and is free of dangers. About midway along this shore and a short distance inland stands a monastery, and on that part at the head of the bay is built the settlement of Skeli.

3-7 Cape Krioneri, the southeast limit of Poros Bay, is located $2\frac{1}{2}$ miles north-northwest of Cape Skyli. Between Cape Krioneri and Point Aliki, $1\frac{1}{4}$ miles northwestward, the southwestern shore recedes slightly southwestward to form a bight. On a rocky shoal extending 200 yards eastward from the western shore of this bight is the small islet of Artino, having close eastward of it a rock above water.

About 400 yards northwestward of Point Aliki, close westward of which is a small islet, lies the islet of Burgi, on which stands an ancient fort. The water surrounding Burgi is deep except for a 6-fathom spot

located about 230 yards southward of the center of the island. Lazaretto, located 300 yards westward of Burgi, is another small islet with a rock above water close north-westward of it. Both the islet and rock lie on a rocky shoal extending 400 yards northward from the shore. About 800 yards north-westward of Lazaretto is Poros Strait.

3-8 Mavrocordato (Mavrokordhatos) Shoal, located in the middle of the entrance to Poros Bay in a position 1,200 yards east-northeastward of the islet of Burgi, is about 100 yards in extent and has a least depth of 6 fathoms, being a danger only for vessels having a large draft. The eastern extremity of the western Kelevini Islet bearing 150° and well open eastward of Cape Spadi, located 1 mile northward of the islet, leads eastward of the shoal. When the horizontal safety angle between the peak of the islet of Modhi and the peak of Ayios Nikolaos (984 feet) on Poros Island is greater than 095° , a vessel is northward of the shoal.

3-9 Anchorage.—Poros Bay is open to the southeastward, but affords good anchorage in the summer. A recommended berth is in 19 to 15 fathoms, sand, with the islet of Burgi bearing 158° and the monastery on the northern side of the bay in range with the point one-half of a mile west-southwestward of it, bearing 068° .

Small vessels can obtain anchorage under the lee of the islet of Lazaretto. The holding ground is good.

Another good berth is in depths of 14 to 16 fathoms with the conspicuous windmill on Poros Peninsula bearing about 225° , distant 800 yards. The holding ground is mainly sand, but there are also weeds and mud.

3-10 Modhi, a rocky islet extending one-half of a mile in a northeasterly and south-westerly direction and attaining a height of

334 feet, lies in the northeastern approach to Poros Bay in a position three-fourths of a mile southeastward of Cape Kalauri (Kalavria), the eastern extremity of Poros Island. From a distance it resembles a lion couchant. Some rocks above and below water lie as far as 100 yards off the northeastern extremity of the islet, but the remainder of the islet, as well as the southeastern coast of Poros Island, is steep-to. The passage between Modhi Islet and Poros Island is deep; on account of its high shores, the passage is subject to calms or unsteady winds.

Loney Rock ($37^{\circ}31' N.$, $23^{\circ}35' E.$, *H. O. Chart 4120*), a rocky reef with a least depth of 30 feet lies $1\frac{1}{4}$ miles eastward of the islet of Modhi.

3-11 Northern side of Poros Island.—The Peninsula of Ayia Paraskevi extends $1\frac{1}{2}$ miles northward from the northern side of Poros Island. The eastern side of this peninsula is indented by two bays, Varyargna (Barbaria) Bay, the southern one, and Ayia Paraskevi Bay, the northern one. Lying 700 yards southward of Point Akherdho, the northern extremity of the peninsula, and fronting the entrance of Ayia Paraskevi Bay is the islet of Beasti (Risti). Rocks above and below water extend northward from Beasti for about $1\frac{1}{4}$ mile; a 6-fathom patch lies about 200 yards southward of Beasti, but elsewhere the 5-fathom curve is only a short distance offshore. Erikathia (Variarnia) Bay indents the southern end of the western side of the peninsula. The depths everywhere on the northern side of the island are great, and the mentioned bays are not used for anchorage.

Platia, an islet having a length of 300 yards in an east and west direction and a height of 23 feet, lies $1\frac{1}{4}$ miles northeastward of the northern extremity of Poros Island, from which it is separated by a deep

passage. Depths of less than 5 fathoms extend a short distance from the islet, and 400 yards west-southwestward of the western extremity of the islet lies a rocky patch with a depth of less than 6 feet; shoals, with depths of less than 6 feet, also extend about 400 yards west-northwestward from the islet. Vessels should keep to the Poros side of the passage.

Petro Kargo (Petrokaravon) ($37^{\circ}37' N.$, $23^{\circ}29' E.$, *H. O. Chart 4115*), lying $2\frac{1}{2}$ miles northwestward of the islet of Platia, is a group of steep-to rocks above water. Numbering ten in all, these rocks occupy an area one-third of a mile in extent. They are easily seen, the largest being 50 feet high. There are no known dangers below water.

3-12 North Entrance ($37^{\circ}32' N.$, $23^{\circ}26' E.$), used by vessels of deep draft to enter Poros Harbor, is located between the western extremity of Poros Island and the mainland. The fairway of the entrance has a length of 1,300 yards, a minimum width of 600 yards, and depths of 30 to 18 fathoms. The eastern shore is indented by a small bay. The head of this bay is foul, and off its southern entrance point lies the small, steep-to islet of Petra. Another small islet lies close off Point Neda (Nedha), the southeastern limit of the fairway.

A submarine cable extends north-northwestward to Methana (sec. 3-22) from close southward of Point Dana. Anchoring and fishing are prohibited within 600 feet of the cable.

3-13 A light is shown from Point Dana, the eastern entrance point of North Entrance.

A light is shown from Point Neda.

3-14 Poros Harbor, formed between the southwestern side of Poros Island, the western side of Poros Peninsula, and shore of the mainland to the south and west, has a length of 3 miles in a west-northwesterly and east-southeasterly direction, a minimum width of 800 yards, and general depths of 15 to 8

fathoms. Being almost landlocked, it is one of the best harbors in Greece for capacity, convenient depths, and shelter.

The northeastern shore of Poros Harbor is indented by three small bays, and along its entire length the 5-fathom curve is not far offshore. The western bay, on the northeastern shore of which stand ruined warehouses that belonged to the Russian Navy, has in its western part Dhaskalia Islet, a small islet connected to the northern shore by shallow water. A government dockyard is situated in the northeastern corner of Poros Harbor, and off it are some mooring buoys.

An obelisk, marking the western end of a measured distance (1 mile), stands on the shore north-northwestward of the islet, and another obelisk stands about 150 yards farther northeastward of it. In range these two obelisks bear 040°. The eastern part of this bay has depths of 14 to 7 fathoms. Megalon Neorion, the middle bay, has a boat pier projecting from its northeastern shore, and on the southeastern limit, Boundouri Point stands an obelisk, marking the eastern end of the measured distance, and close westward of the obelisk stands a monument. Immediately eastward of Boundouri Point is a very small bay, called Mikron Neorion, and about one-half of a mile farther eastward is Poros Peninsula.

The southern shore is swampy, and the 5-fathom curve is about 300 yards offshore. Vidhi Bay, the western end of Poros Harbor, has on its southern side a tongue of land enclosing the lagoon of Drapani. Depths of less than 3 fathoms extend about 600 yards from the western shore of this bay, and on this shore stands the small settlement of Vidhi, surrounded by well-cultivated land. About 600 yards southward of the settlement is a small pier. The outer part of Vidhi Bay has depths of 10 to 5 fathoms. Foul ground lies within an area bounded by a line starting from a point about 1/2 mile west-southwestward of Dhaskalia Islet and extending about 700 yards south-southwestward, thence about 500 yards westward, and thence to the starting point.

The eastern side of Poros Harbor is formed by Poros Peninsula which has on its northern part a naval establishment. The buildings are located on a tongue of land projecting in a northwesterly direction. The basin northward of the establishment has depths of less than 1 fathom. A light is shown on a small islet forming the southern entrance point of this basin. Some mooring buoys are located about 200 yards southward of the light.

The town of Poros is located on Akra Kolona, the southwestern extremity of the peninsula and the northern entrance point of Poros Strait.

A conspicuous windmill is located eastward of the town on the summit of the peninsula.

3-15 Poros Strait, separating the southwestern shore of Poros Peninsula from the mainland, can be used by small vessels to enter Poros Harbor from the east. Local vessels leaving Poros Harbor for Hydra use the strait to avoid the long trip around Poros Island. Although the strait has a width of about 400 yards, shallow water, which is less than 6 feet in many places, extends from the southern shore of the strait, leaving a fairway with a width of about 100 yards and a least depth of 14 feet along the southwestern side of Poros Peninsula. The town of Galatas is located on the southern side of the western entrance to the strait.

A submarine cable crosses Poros Strait from a point near the western end of Poros Peninsula to Galatas, and a submerged water pipe crosses about 350 yards farther southeastward. The locations are marked by buoys.

An overhead cable, with a vertical clearance of 98 feet, crosses Poros Strait near its southeastern end.

3-16 A light is located near the western end of Poros Peninsula. Another light is located on the mainland in a position about 700 yards south-southwestward of the above-mentioned light. These lights are shown from pillars on the shore at each end of the cable.

A signal station and a signal mast, showing a red light, stand on the northwestern extremity of Poros Peninsula.

For the passage of Poros Strait, vessels coming from the eastward enter the fairway by passing close southward of the conspicuous church on Stavros Point, the southeast-

ern extremity of the peninsula; when leaving Poros Harbor, they pass close southward of Kolona Point, the southwestern extremity of the peninsula, and keep to the embanked southern side of the town of Poros.

3-17 A light is shown from the northern entrance point of East Entrance.

Current.—A slight current sets through Poros Strait during and after easterly or westerly winds. According to local fishermen and the harbor master this current never exceeds one knot.

Measured distance.—The obelisks described with the northeastern shore of Poros Harbor mark the limits of a measured mile. The course to be steered is 120° or 300° , in depths of 15 to 8 fathoms. This measured mile is only for vessels of low speed.

3-18 Anchorages.—The best berth for large vessels in Poros Harbor is in a charted depth of 11 fathoms with the obelisk on Boundouri Point bearing 110° , distant 500 yards, or at a suitable distance westward of this same point. Another good berth for large vessels is in 12 fathoms, mud, with Dhaskalia Islet bearing 349° , distant 600 yards, and Point Neda bearing 310° .

There is a pier, for small craft at the head of Vidhi Bay and northward of it is an aqueduct, about 400 yards long, with a floating stage at its seaward end from which a light is shown.

Small vessels communicating with the town anchor in 8 fathoms in a position 200 yards westward of its southwestern part, while small vessels serving the naval establishment anchor 300 yards southwestward of the northwestern part of the establishment.

Prohibited anchorage.—Anchorage is prohibited on either side of a line joining Boundouri Point and Tombazi Point. Tombazi Point is located about 800 yards southwestward of Boundouri Point.

In 1964 the Greek Naval Ship Averof was moored permanently off the government dockyard; vessels may not anchor in her vicinity. Anchorage is prohibited in the areas in which there are submarine cables and pipelines, described in section 3-15.

3-19 Winds.—According to local fishermen when there are low white clouds in the saddle between Mount Ortholithi (sec. 3-25) and the next mountain, there will be the next day a strong north-northeasterly wind, which may last for a few hours. When there are thick white clouds on the mountain south of Galatas, the following day will have strong southerly winds. When there are many small clouds moving over Mt. Khelona on Methana Peninsula there will be a strong westerly wind the following day, and when the clouds over Methana Peninsula turn dark and black and move toward the south, it is a sign of rain.

Vessels moored alongside the wharf shift to the anchorage and remain there during prevailing strong northwesterly and southerly winds.

Only strong southwesterly winds stop the working of cargo at the anchorage in Poros Harbor.

3-20 POROS (*37°30'N., 23°27'E.*), extending along the western and southwestern sides of Poros Peninsula, is built on the sides of a hill; the population numbers about 6,900. From Poros Harbor are exported olives and fruits grown on the neighboring mainland. The town has postal, customs, and telegraphic facilities, and coastal steamers make regular calls.

Wharves.—There is a wharf about 246 feet long, with depths of 11½ feet, located near the center of the town. A wharf 165 feet long with a depth of 16 feet alongside is located off the western part of town.

Repairs.—Minor repairs can be effected.

Supplies.—Provisions are procurable, and water is supplied either by water boat or from a pipe line at Tombazi Point.

Hospital.—A hospital is maintained.

Galatas, located on the mainland opposite Poros, has about 1,500 inhabitants, scattered on the farms of its fertile district, which produces a considerable amount of olives, lemons, and oranges.

3-21 POROS ISLAND TO CAPE SPIRI.

—The western shore of the Gulf of Athens between Methana Peninsula and Corinth Canal is of no interest to navigators, being removed from the shipping lanes to Piraeus

and the Corinth Canal and having no important ports.

Coast.—From North Entrance, the deep entrance into Poros Harbor, the coast of the mainland trends 2½ miles west-northwestward to Port Steno, located on the eastern side of Methana Peninsula. This stretch of the coast is free of dangers and has deep water near it.

3-22 Methana (Methanon) Peninsula (H.O. Chart 4115) projects 5 miles northward from a position on the mainland about 5 1/2 miles westward of the northern extremity of Poros

Island. This peninsula reaches its maximum width of $5\frac{1}{4}$ miles in the northern part, and near the center of the mountainous peninsula is Mt. Khelona, an extinct volcano rising to a height of 2,430 feet. The coast of this peninsula, rocky in most places, has deep water near it, and rocks above and below water lie a short distance offshore. Several villages are located in the interior.

Steno Isthmus, a short and narrow neck of land, 254 feet high, connects Methana Peninsula to the mainland. On this isthmus are the ruins of some fortifications.

Port Steno, a small inlet formed between the northeastern side of Steno Peninsula and the southern side of Methana Peninsula, recedes one-half of a mile in a northwesterly direction and is free of dangers. The width is about 400 yards, and the depths decrease from 12 fathoms in the entrance to 9 fathoms near the head. The bottom of loose volcanic fragments makes indifferent holding ground. This inlet is used only by small coasters.

The bathing resort of Methana, consisting of hotels and bath houses, is located on the eastern side of Methana Peninsula in a position $1\frac{1}{2}$ miles northward of Port Steno. Immediately southward of the resort is a small cove available for boats. In this cove is a small islet. Inland of this resort is the village of Methana (Vromo). The cultivated area around this village produces fruit and grain. Provisions and diesel oil are available in small quantities. The village has customs, postal, and telegraphic facilities, and coastal steamers serving this community seldom anchor.

A light is shown close eastward of the resort village of Methana. Another light is shown about $\frac{1}{4}$ mile southward of the above light.

σ-23 The remaining eastern coast northward of the bathing resort and the northern

coast of the peninsula are of no interest to navigators and present no dangers. They are precipitous in their entirety, and the depths are great, with rocks above water near the shore. A small settlement is located at the northeastern point of the peninsula, and on the northern coast are the medicinal baths of Dhafni, with a small settlement. The western side of Methana Peninsula is described with Epidavro Bay.

3-24 **Methana Channel**, between Methana Peninsula on the south and the islands of Ægina, Moni, and Angistri on the north has a minimum width of about 2 miles and is very deep and clear of dangers. The islet of Platia and the rocks of Petro Kargo lie in the southeastern approach to the channel.

3-25 **Epidavro (Epidhavro) Bay**, open to the northwestward, is the name given on some charts to the large body of deep water between the western coast of Methana Peninsula and the coast of the mainland as far northward as Cape Trakhyli. When there is any wind, the bay is subject to heavy squalls from the surrounding mountainous land. Mount Ortholithi, located 2 miles inland on the southwestern side of the bay, rises to a height of 3,625 feet.

3-26 **Eastern side of Epidavro Bay.**—From Panagia (Panayia) Point ($37^{\circ}37' N.$, $23^{\circ}18' E.$, *H. O. Chart 4115*), the northwestern extremity of Methana Peninsula, the western coast of Methana Peninsula trends 4 miles southeastward to Steno Isthmus. This stretch of the coast is precipitous and has deep water near it.

About 2 miles southeastward of Panagia Point is a small cove used by sailing vessels. On the shore of this cove is a small settlement, dominated by a church on the summit of a hill. About one-half of a mile farther southeastward are the ruins of the ancient city of Methana, and here are also some houses, as this place is the landing place for

the inland village of Megalokhori. Close southeastward of these ruins projects Marliassa Head (Point Pounda), and lying about 150 yards southward of this head is a sandy patch with a depth of $1\frac{3}{4}$ fathoms. Thini (Thinni) Bay, located $1\frac{1}{2}$ miles southeastward of Marliassa Head, indents the northern part of Steno Isthmus. Open to the southward, this small bay has depths of 7 fathoms and is clear of dangers.

A light is located about 2 miles southeastward of Panagia Point on the north side of the river's mouth.

3-27 Southern, southwestern, and western sides of Epidavro Bay.—Valario Anchorage is located one-half of a mile southwestward of Steno Isthmus, and about $1\frac{3}{4}$ miles farther southwestward is Psiftis Anchorage, eastward of which is a small brackish lake on the mainland. Good water in a large quantity may be obtained quickly from a pipe at Psiftis Anchorage. There are some buoys for a vessel using the installation. Water can be obtained also at Lesia Anchorage, located $1\frac{3}{4}$ miles northwestward of Psiftis Anchorage. About $3\frac{1}{2}$ miles northwestward of Lesia Anchorage is the small point of Nisi Zar (Nisidha), from which rocks project for a short distance. The landing place for the inland villages of Phanari Kato (Fanari Kato) and Phanari Apano (Fanari Apano) is westward of this point, but the depths are too great for anchoring. A buoy is located about $\frac{3}{4}$ mile southeastward of Nisi Zar Point. From the point of Nisi Zar the steep-to coast trends 4 miles northwestward to St. Lassi Bay, where commences the western side of Epidavro Bay.

St. Lassi (Ayios Vlassis) Bay recedes one-half of a mile westward from its entrance, which is about $1\frac{1}{4}$ miles in width. Forming the northern side of the bay and separating it from Port Epidavro is a rocky peninsula, on which are the ruins of ancient Epidaurus. The southern shore of the bay has depths of 5 fathoms close to it. Rocks extend a short distance from the middle part of the head of

the bay, and northward of these rocks the head of the bay is fringed by a steep-to bank with depths of less than 3 fathoms extending 300 yards offshore.

During good weather, especially in summer, vessels can take temporary anchorage in the northwestern part of St. Lassi Bay, but they must leave immediately when easterly winds start blowing. The recommended berth is in depths of 19 to 13 fathoms, mud, about 300 yards southward of the cliffs of the rocky peninsula and 500 yards eastward of the head of the bay.

3-28 Port Epidavro (Palaia Epidhavros) ($37^{\circ}38' N., 23^{\circ}10' E.$),

located immediately northward of St. Lassi Bay, from which it is separated by the above-mentioned rocky peninsula with ruins on it, is a small bay receding over one-half of a mile in a westerly direction. Depths of less than 3 fathoms extend about 80 yards off the precipitous southern shore of the outer part of the bay. A conspicuous church stands on a projection at the middle of the head of the bay, and a rocky ledge with depths of $1\frac{1}{4}$ fathoms extends 230 yards east-southeastward from this projection. Between the extremity of this rocky ledge and some shallows fringing another projection on the southern shore is the entrance to the inner harbor, where small vessels can obtain sheltered anchorage in a small area with depths of 2 to 3 fathoms. This entrance is only 40 yards wide, and during calm weather the fairway is indicated by the color of the water; otherwise Kalamaki Point, the northern entrance point of the bay, in range with the saddle formed by the two high parts of Angistri Island, bearing 066° astern, leads through the entrance. The outer part of the bay has depths of more than 10 fathoms, but here vessels are exposed to easterly winds. A foul area extends $\frac{1}{2}$ mile northward from Kalamaki Point, and up to $\frac{1}{2}$ mile offshore.

A light is shown from Kalamaki Point.

3-29 Epidavro (Palaia Epidhavros), a village of about 550 inhabitants, is located at

the head of the bay. It has a small pier with a depth of 13 feet at its head. A light is shown on the pier. The town has customs, postal, and telegraph facilities. The neighboring area is well cultivated, cereals and fruit being grown. Coastal steamers call. The climate is unhealthy because of small swamps.

3-30 Piadha (Nea Epidhavros) Bay ($37^{\circ}40' N.$, $23^{\circ}10' E.$, *H. O. Chart 4115*), open to the eastward, is located 2 miles northward of Port Epidavro. The intervening coast is precipitous and steep-to, but a few rocks lie close offshore. The bay has depths of more than 16 fathoms. In the northern part of the bay a projection extends 500 yards in a southeasterly direction and has a cove on either side. Small vessels can anchor in safety in the western cove, but depths of 17 fathoms lie close inshore.

On the shore of the western cove is the small settlement of Paralia, from which a light is shown. Two lighted buoys are located about 300 yards eastward of the light. Paralia serves as a port for the town of Piadha (Nea Epidhavros), located on a hill 1 mile inland, and dominated by a ruined Venetian fortress. The town has customs, postal, and telegraph facilities, and coastal steamers call at Paralia. The neighboring area produces forest products, and the climate is unhealthy because of swamps.

3-31 Cape Trakhyli (Trakhili), the northwestern limit of Epidavros Bay, is located 2 miles north-northeastward of Piadha Bay, the intervening coast being steep-to and presenting no dangers. Close off this cape lies the small rocky islet of Trakhyli. Northward of Cape Trakhyli the coast recedes sharply to the westward for a distance of about $2\frac{1}{2}$ miles to form a large bay, which the Greek Sailing Directions name Ormos Sofikou.

Salaphto Nisi, a small islet 3 miles eastward of the cape, is described in section 3-49.

Selonda Bay, a smaller bay at the southwestern recess of the above-mentioned large bay, recedes one-half of a mile in a westerly direction and has a width of one-third of a mile. The depths are great, rendering anchorage almost impossible.

3-32 Port Sophiko (Sofikou) ($37^{\circ}45' N.$, $23^{\circ}08' E.$, *H. O. Charts 4115 and 4117*), a small bay located at the northwestern recess of the above-mentioned large bay, recedes one-half of a mile in a northeasterly direction and is about one-third of a mile wide. As the bay is surrounded by high land, the winds are always baffling. The 5-fathom curve is about 200 yards offshore, but elsewhere the depths are greater, the bottom being sand. This bay is suitable only for small vessels, which enter on a north-northeasterly course and anchor in depths of 5 to 4 fathoms near the head. At the head is a small settlement, which serves as the port for Sophiko (Sofikon), a town located 5 miles inland of this bay.

A light is shown on the eastern entrance point of Port Sophiko.

Shoal.—About midway between Selonda Bay and Port Sophiko and as far as 600 yards offshore is a detached and elongated shoal with a least depth of $6\frac{1}{2}$ fathoms. A spring bubbles up from a depth of 7 fathoms on this shoal; this spring is conspicuous during a calm, but a slight breeze is sufficient to mix the fresh and salt water.

3-33 Coast—Islet.—Cape Traili (Trelli), located 1 mile eastward of Port Sophiko, is the northern entrance point of the large bay mentioned with Cape Trakhyli. Shallows with rocks above and below water extend a short distance southward and 400 yards eastward from the cape. From Cape Traili the steep-to coast trends first $1\frac{3}{4}$ miles north-eastward and then $1\frac{1}{2}$ miles northward to Cape Spiri, the southeastern limit of Kekhries Bay (sec. 3-122). The Diaporii

Islands, located $2\frac{3}{4}$ miles eastward of Cape Spiri, are described in section 3-52.

Petro Nisi (Petros), a small rocky islet located 1 mile east-northeastward of Cape Trailli, lies one-half of a mile off the mainland, from which it is separated by a deep channel clear of dangers. A bank with a least depth of $8\frac{1}{4}$ fathoms lies 400 yards eastward of the islet.

Foul ground extends about 400 yards southward and southeastward from Cape Trailli.

3-34 ISLANDS IN THE GULF OF ATHENS.—One large island and numerous smaller islands are located in the middle part of the gulf. The island of Poros (sec. 3-4) and that of Salamis (sec. 3-90) are described, respectively, with the western and the northern sides of the gulf, and several other islets are described with the locality close off which they lie.

3-35 Ægina (Aiyina) (*H. O. Chart 4115*), the second largest island in the Gulf of Athens, is located in about the middle of the gulf, being about 4 miles northeastward of Methana Peninsula, from which it is separated by Methana Channel, and about $10\frac{1}{2}$ miles southward of Piræus. The island is somewhat triangular in form, its sides being about 7 miles in length and its northern side trending in an east and west direction. The coast of the island forms a multitude of small bays and coves, and the depths near the coast are considerable and present no dangers except for some shallows southward of Ægina Harbor. The island has numerous barren hills, but the valleys and plains, especially in its western part, are well cultivated. Mt. Oros, located in the southern part of the island, rises to a height of 1,752 feet.

The population of the island of Ægina and its neighboring islands numbers about 10,000 inhabitants, of which about 6,000 live in the town of Ægina. The principal crops

raised are grain, cotton, olives, grapes, and other fruit. The island has considerable commercial activity, especially on the part of small vessels during the summer. The climate is considered to be the best in the Gulf of Athens.

Landing in certain areas on the island is prohibited; information pertaining thereto should be obtained prior to visiting the island.

3-36 Eastern coast of Ægina.—Cape Pyrgos (Pirgos) ($37^{\circ}40' N.$, $23^{\circ}29' E.$, *H. O. Chart 4115*), the southern extremity of the island, has a ruined tower on it. Rocks above and below water extend 200 yards southwestward from the cape, but the water is deep along the precipitous eastern side of the cape.

A submarine cable extends from about $1\frac{1}{2}$ mile north-northwestward of Cape Pyrgos to Cape Yeoryios (sec. 4-93). Anchoring and fishing are prohibited within 600 feet of the cable.

Between Cape Pyrgos and Cape Andonis, $2\frac{1}{2}$ miles east-northeastward, the cliffy coast is indented by two small bays. Liyea, the western bay, has rocks close off its northern shore, and Kipon, the eastern one, is the port of the settlement of Vlakhidhes.

A conspicuous church is located about 400 yards inland, midway between Cape Pyrgos and Cape Andonis.

Cape Andonis (Ayios Andonios), eastward of the highest part of the island of Ægina, rises to a conical hill, 1,020 feet high, and is conspicuous. Shoal water extends 200 yards from the cape, and 800 yards eastward of the cape lies a 10-fathom patch.

From Cape Andonis the precipitous coast with deep water near it trends $2\frac{1}{8}$ miles north-northeastward to the southern entrance point of St. Marina Bay. It is indented by several small bays; from south to north they are Livadhaki, serving the settlement of Gkanakidhes, Portais, serving the settlement of Anitseos, and Pontza, serving the settlements of Tsoulindras and Tzanou.

St. Marina (Ayia Marina) Bay, open to the southeastward and having a width of 1 mile in its entrance, has precipitous sides and a sandy beach at its head, where is located a small settlement. On a 578-foot hill located three-fourths mile northwestward of the bay are the conspicuous ruins of the Temple of Aphaia. During the summer this bay affords temporary anchorage in any convenient depth, sand and weeds.

From Cape St. Marina (Ayia Marina), the northern entrance point of St. Marina Bay, the coast trends $1\frac{1}{2}$ miles north-northeastward to Cape Krousospelia (Krasospilia), the northeastern extremity of the island. Between Cape Krousospelia and Cape Turlo (Tourlos), one-half of a mile southward, rocks above and below water lie as far as 400 yards offshore; one of the rocks, 59 feet high, has the appearance of a boat under sail.

3-37 A light is shown from Cape Turlo.

Caution.—The area within 1 mile of the northern coast of Ægina has been established as a torpedo firing area.

3-38 The north coast of the island of Ægina is of no significant interest to vessels. In places it is bordered by rocks above and below water, and the 5-fathom curve is as far as 400 yards offshore.

Nisida (Nisidha), a small rocky islet with a rock above water close northwestward of it, and a rock awash about 200 yards off its northern side, lies about $\frac{3}{4}$ mile west-northwestward of Cape Krousospelia and 400 yards off the north coast, to which it is connected by a reef.

Souvala, a small bay open to the northeastward and available only to small vessels, is located at the middle of the northern coast. The bay has some activity during the summer, as an establishment for medicinal baths is located in the small bay immediately eastward of Souvala.

Westward of Souvala are a series of small bays open to the northward. Vathi, the one located 1 mile westward of Souvala, is the

only one of interest, having a village and facilities for small vessels to load porcelain. The westernmost bay, limited to the west by Cape Livathia (Livadhia), has some rocks in its inner part and a ruined ancient mole on its eastern side.

A light is shown from Cape Livathia.

Cape Plakakia, located 800 yards southwestward of Cape Livathia, is the northwestern extremity of the island of Ægina. Rocks above and below water extend 200 yards offshore in the vicinity of the cape, on which are some dwellings.

A submarine exercise area exists between Angistri (sec. 3-47), Ipsili (sec. 3-51), and Cape Plakakia.

A light is shown from Cape Plakakia. Near the lighthouse stands a dwelling and a small church.

A toul ground area lies about 600 yards northward of Cape Plakakia.

3-39 Western side of Ægina—Coast.—

From Cape Plakakia the coast trends 1 mile south-southwestward to Ægina Harbor. It is bordered by a shallow bank, which, with detached patches, extends as far as 400 yards from the southern half of this stretch of the coast. Cape Skendiriotti (Kolona), 800 yards north-northwestward of the harbor, has on it the conspicuous ruins of a temple. Between the cape and the harbor are the sunken remains of an ancient harbor.

3-40 Ægina (Aiyina) Harbor ($37^{\circ}45' N.$, $23^{\circ}26' E.$, *H. O. Chart 4117*), a small port open to the southwestward and available only for coasters, is formed by two moles extending from the town of Ægina. The southern mole, having a memorial tomb at its head, trends 230 yards in a west-northwesterly direction; the northern mole, having a small church at its elbow, trends first 150 yards in a southerly direction and then 120 yards in a west-southwesterly direction.

The entrance is 43 yards wide, and seaward of it are some ancient harbor works covered with 11 to 8 feet of water. The harbor depths decrease from 12 feet in the central part to 5 feet along the sides of the moles and shore, which are quayed.

Lights.—A light is shown from the head of the northern mole.

A light is shown from the head of the southern mole.

A light is shown from the elbow of the northern mole.

Two lights (vertical) are shown from the head of the pier at the head of the harbor; these lights kept midway between the light at the elbow of the northern mole and that on the head of the southern mole leads towards the entrance.

3-41 Directions.—To avoid the sunken blocks of ancient harbor works off the entrance, vessels should approach or leave the entrance by steering with the dome of the church located about 200 yards eastward of the pier at the head of the harbor in range 071° with the light structure on the head of the southern mole. At night vessels should keep in the sector formed by the two lights (vertical) with the light on the elbow of the northern mole and the light on the head of the southern mole.

A submarine cable extends from a position about $\frac{1}{2}$ mile northward of the head of the northern mole in a general southwesterly direction to the northern extremity of Angistri. Anchoring and fishing are prohibited within 600 feet of the cable.

3-42 Ægina (Aiyina) ($37^{\circ}45' N.$, $23^{\circ}26' E.$, *H. O. Chart 4117*) has no commercial activity but enjoys a tourist trade during the summer. The town has numerous churches, and some of the buildings from its ancient era of prosperity are still preserved. The population of the town, together with its neighboring settlements, numbers about 6,200 inhabitants, a large part of whom are engaged in sponge fishing.

The small pier at the head of the harbor has a depth of 8 feet and is used for passenger landings.

Provisions, and water are procurable. Customs, postal, and telegraphic facilities are available, and coastal steamers call regularly. It is reported that a small hospital is maintained.

3-43 Coast.—From Ægina Harbor the western coast of the island trends about 1 mile south-southeastward to Palaio Pyrgos

(Palaioirgos) Point, the northern entrance point of Marathona Bay. This stretch is bordered by shallow rocky depths extending offshore as far as 600 yards, and lying as far as 1,200 yards westward of Palaio Pyrgos (Palaioirgos) Point are some detached shoal patches, which must be guarded against when a vessel is using Metopi Channel (sec. 3-48).

3-44 Marathona Bay (Ormos Marathonos), a large bay indenting the western side of Ægina Island to a distance of 1 mile, is entered between Palaio Pyrgos Point and Perdika (Perdhika) Point, $2\frac{1}{4}$ miles south-southeastward. Although open to the west, the bay is sheltered from westerly and northwesterly winds by the island of Angistri and the islet of Metopi, and from the south by the island of Moni. In the northern part of the bay the 5-fathom curve is 500 yards offshore and has within it shallows and rocks, while in the southern part the 5-fathom curve is only 200 yards offshore. On the northern shore is the settlement of Perivola (Marathon).

Spacious and excellent anchorage is available off Perivola in a depth of 19 to 10 fathoms, mud and sand, good holding ground. A recommended berth for large vessels is in a depth of 19 fathoms with Palaio Pyrgos Point bearing 326° and the light structure on the island of Moni, 210° . Small vessels can anchor northward of this berth.

3-45 Coast.—Between Perdika Point, the southern entrance point of Marathona Bay, and Ayios Sozon Point, one-fourth of a mile southward, is the small bay of Perdika. Both of the entrance points and the head of the bay are fringed by shallows and rocks, and the middle of the bay has a depth of 23 feet. This bay is available only for small vessels, which here are sheltered from all weather. At the head of the bay is the village of Perdika (Perdhika). On Perdika Point

are the conspicuous ruins of a large mill, and a conspicuous church stands on Ayios Sozon Point.

From Ayios Sozon Point the coast trends $1\frac{1}{2}$ miles southeastward to Cape Pyrgos, the southern extremity of the island. This stretch is indented by three small bays, named Sarpa, Louriotais, and Klima. The latter bay, located immediately westward of Cape Pyrgos, has shallow water fringing its shores.

Prohibited anchorage.—A prohibited anchorage area, the limits of which are indicated by dashed lines on the chart, is established about one-half of a mile offshore between Ayios Sozon Point and a point lying about one-half of a mile west-northwestward of Cape Pyrgos.

3-46 Moni ($37^{\circ}41' N.$, $23^{\circ}26' E.$, *H. O. Chart 4115*), an island extending 1 mile in a northeasterly and southwesterly direction, having a maximum width of one-half of a mile, and attaining a height of 587 feet, is separated from Perdika Point and Ayios Sozon Point by Moni Pass. Pine trees cover the northern part of the island. The island is precipitous and surrounded by deep water except for some rocks close to the northern coast, which, as well as the southeastern coast, is indented by a small cove.

Moni Pass has a width of 600 yards and depths of 20 to 15 fathoms. The winds in this pass are baffling due to the high land on the Ægina side. Vessels should favor the western part of the pass.

A light is exhibited from a white tower on a square house, the whole 21 feet high, located on the southwestern point of Moni.

3-47 Angistri (Angistrion), a wooded island lying $2\frac{1}{2}$ miles westward of that of Moni, from which it is separated by Vathi Channel, extends 3 miles in a northeasterly and southwesterly direction, has a maximum width of 2 miles in its northern part, and

attains a height of 964 feet. The southeastern and southern coasts are steep-to and present no dangers; the southern part of the western coast is indented by several coves, while the northern part of this same coast has rocks lying close to it.

The main products of the island are resin from the numerous pine trees, olive oil, barley, grapes, and other fruit. The inhabitants number about 700, residing in the villages of Megalokhori (Angistrion), northwestern part of the island, Metokhi, northeastern part of the island, and Lemoncori (Lemonaria) (Limenarion), southern part of the island.

Thorussa (Dhorousa), a small rocky islet charted about 110 yards eastward of its actual position, lies close off the southwestern part of Angistri, from which it is separated by a channel having a width of 410 yards and depths of 19 to 7 fathoms. The small bay indenting Angistri opposite this islet is deep, having depths of 10 fathoms near its shores. Just north of this bay a much smaller rocky islet lies close off Angistri, with rocks in the narrow channel between them.

Vathi Channel, separating the island of Angistri from that of Moni, has considerable depths and is free from dangers. This channel leads to Marathona Bay or Metopi Channel.

3-48 Metopi, located three-fourths of a mile northeastward of Angistri, is a low islet extending three-fourths of a mile in a northeasterly and southwesterly direction. This islet lies on a rocky bank with depths of less than 5 fathoms that extends northeastward a considerable distance from the northern side of Angistri. The bank extends as far as 1 mile eastward, one-half of a mile northward, and one-fourth of a mile southward from Metopi. On Metopi are numerous vineyards.

Angistri Pass, between the rocky shallows extending northeastward from Angistri and

southwestward from Metopi, has a fairway about 200 yards wide with depths of 3 fathoms. Located about midway between these two islands and trending in an east and west direction, this pass should not be used without local knowledge.

Metopi Channel, about 2 miles wide between Metopi on the west and Ægina on the east, is limited to a fairway having a width of 800 yards and a least depth of $4\frac{1}{2}$ fathoms between the 5-fathom curve located 1 mile eastward of Metopi and the shallow rocky patches lying as far as 1,200 yards westward of Palaio Pyrgos Point.

To pass through Metopi Channel, keep the northeastern point of the islet of Hypsili in range 320° with the gap in Mt. Geraneia. Ayios Sozon Point bearing 142° and open slightly eastward of the island of Moni also leads through the channel.

3-49 Kyra (Kira) ($37^\circ 42' N.$, $23^\circ 16' E.$, *H. O. Chart 4115*), the islet located $2\frac{3}{4}$ miles westward of the island of Angistri, from which it is separated by a deep and clear passage, is steep-to except for some rocks extending as far as 200 yards southeastward from its southeastern point. This islet is used for grazing.

Salaphto (Salafto) Nisi, a steep-to islet much smaller than Kyra, lies two-thirds of a mile westward of that islet. Both of these islets lie in the northwestern approach to Methana Channel (sec. 3-24).

3-50 Lagosa Isles (Eleousai) (Lagonisos) (*eastern end*, $37^\circ 49' N.$, $23^\circ 29' E.$, *H. O. Chart 4117*), a group of 4 islets close together, are located $2\frac{1}{2}$ miles northward of the island of Ægina. This group is the easternmost part of a chain of islets extending $11\frac{1}{2}$ miles in an east and west direction, and the islets and groups of islets making up this chain are separated from each other by deep channels and are generally steep-to. A shoal with a depth of $3\frac{1}{2}$ fathoms extends 600 yards eastward from the easternmost

and largest Lagosa Isle; otherwise no other shoals or rocks extend more than 200 yards from any of the other four islets.

A light is exhibited from a metal framework tower on Lagosa Isle.

Platia, a small islet 167 feet high, lies $2\frac{3}{4}$ miles westward of Lagosa Isles, has shoal depths extending 200 yards southward from it.

Staktoroya (Stakhtorryi), charted about 110 yards eastward of its actual position, lies about 1 mile west-northwestward of Platia; it is a steep-to islet.

3-51 Hypsili (Ipsili), the steep-to islet located $1\frac{1}{4}$ miles southwestward of Staktoroya, has a height of 459 feet, which makes it the highest islet of the above-mentioned chain. Hypsili has 3 smaller islets off its western side.

3-52 Diaporii (Dhiaporioi) Islands, the name given to a group of 6 islets forming the western end of a chain of islets previously mentioned, lie $2\frac{3}{4}$ miles eastward of the mainland at Cape Spiri. Agios Ioannis, 269 feet high, Agios Thomas, 147 feet high, and Trago Nisi, 288 feet high, are the principal islets of the group; they lie from north to south in the order given and are separated by passages not recommended for vessels. Trago Nisi, steep-to on its outer sides, has one-half of a mile eastward of it the small and low islet of Lethu, which has shallow depths extending a short distance westward and southward from it. About 800 yards eastward of Agios Thomas is Nisis Prassou, a small islet, 23 feet high, surrounded by deep water, and 1 mile farther eastward is the small islet of Molathi, the easternmost of the group. Rocks and shallows extend a short distance from Molathi, and 800 yards west-northwestward of this islet lies a steep-to, rocky, $4\frac{1}{2}$ -fathom patch. A shoal with a least depth of 3 feet lies as far as 800 yards south-southeastward

of the eastern extremity of Agios Ioannis, from which it is separated by deep water.

There are two measured distances off the northern side of Molathi Islet, Agios Ioannis and Agios Thomas. Both distances are 6,076.1 feet long, each end being marked by a pair of beacons, except the eastern end of the eastern distance which is marked by a single beacon.

The courses for running both the distances are 090°-270° at a distance off the northern side of Agios Ioannis of not less than 2,200 yards, so that the beacons are visible.

3-53 EASTERN SIDE OF THE GULF OF ATHENS—Aspect. (*H.O. Chart 4120*)

The southern part of this side of the gulf is a mountainous district of scattered summits. Mount Keratea (Keratovouni), 2,133 feet high, located 9 miles north-northwestward of Cape Colonna, and Mount Olimbos, 1,595 feet high, located 3 miles southwestward of Mount Keratea, are some of the highest summits of this district. The mountain chain located eastward of Piræus and terminating to the south in Cape Zervi attains a maximum height of 3,366 feet in Mount Hymettus (Imittos). Between Cape Colonna and Vuliasmeni Bay the coast is sparsely inhabited, while northward of the bay the settlements become numerous.

3-54 Cape Colonna (Sounion) (*37°39' N., 24°02' E., H.O. Chart 4120*), the high northeastern entrance point of the Gulf of Athens, has on it the conspicuous ruins of a temple, and 1½ miles northward of this cape rises a hill, 848 feet high. The water is deep near its precipitous sides, but a rocky 3½-fathom patch lies 750 yards 267° from the southeastern extremity of the cape.

The coast northward of Cape Colonna is described in section 5-3.

3-55 Port Colonna (Sounion), the small bay indenting the shore immediately westward of Cape Colonna, affords shelter to small vessels against northerly and northeasterly winds. The depths are 8 to 3¾ fathoms, coarse sand, good holding ground. Fronting the western part of the bay is the small rocky islet of Arkhi, which is clear of dangers. Along the shores of the bay are some villas and a loading place for ore.

3-56 Legrana Bay (Ormos Legrainon), about 1 mile wide in its entrance, is located immediately westward of Port Colonna. Mt.

St. Elias, 2¼ miles northward of the western entrance point, rises to a height of 840 feet, and the sandy beach at the head of the bay is visible from a good distance. The depths decrease gradually from 10 fathoms

in the entrance to the beach. Rocks awash lie about 400 yards eastward and 200 yards southward of the western entrance point and another similar rock lies at the head of the bay about 1/2 mile northeastward of the same point.

Anchorage in Legrana Bay is available in any convenient depth, sand bottom. A mooring buoy is located near the eastern entrance point, where there is a well. As this bay is sheltered against northerly and northeasterly winds, it is used by sailing vessels unable to proceed to the eastward on account of the wind or current.

3-57 Gaidaro Island (Nisis Patroklou) (*37°39' N., 23°58' E., H.O. Chart 4120*), 823 feet high, lies with its eastern end about 1 mile southwestward of the western entrance point of Legrana Bay, and is separated from the mainland to the northward by a channel with a width of 1,200 yards and a depth of 6 fathoms in the fairway. This precipitous and uninhabited island has deep water near its shores.

A 19-foot patch lies about 400 yards northeastward of the lighthouse. Medina Rock, awash, lies about 1,400 yards eastward of the lighthouse and close northeastward of the fairway; a 23-foot patch lies close westward of Medina Rock. Vessels should not pass northward of this rock but should keep to the Gaidaro Island side of the channel. The lighthouse on Phleba Island in range with Cape Katapheki, bearing 303 1/2°, leads through the eastern part of the passage close southwestward of Medina Rock and northeastward of the 19-foot patch on the southern side.

A light is exhibited from a beacon on a small tower standing on the northern side of Gaidaro Island.

Cape Katapheki (Katafiyi), a point on the mainland 1 mile northward of the north-

western extremity of Gaidaro Island, rises to a height of 764 feet. From this cape the coast with rocks and deep water near it trends 2 miles northward to the southeastern entrance point of Port Agios Nikolaos.

Foul ground is located about 800 yards southeastward of Cape Katapheki.

A light is exhibited from a beacon on a small tower standing on the lower part of Cape Katapheki.

3-58 Arsida (Arsidha) Island, located $2\frac{3}{4}$ miles northwestward of Cape Katapheki, has a height of 449 feet. This rocky and uninhabited island is separated from the mainland to the northeastward by a channel having a width of 700 yards. Shallows extend from both sides of the channel, leaving in the middle a narrow fairway with a least depth of $3\frac{3}{4}$ fathoms. A small rock above water, however, lies in the fairway.

3-59 Port Agios Nikolaos (Ormos Anavissou) indents the mainland eastward of Arsida Island to a distance of 1 mile and has an average width of three-fourths of a mile. The outer part of the bay has depths of 10 to $4\frac{1}{4}$ fathoms, and the 3-fathom curve is about 400 yards off the head of the bay. Shallows extend 400 yards southward and southeastward from the northwestern entrance point, and about 200 yards westward from the southeastern entrance point. Salt pans are located at the head of the bay. On the eastern shore is a small settlement.

Port Agios Nikolaos is a suitable summer anchorage, and during the winter small vessels can obtain shelter from northerly winds.

A light is exhibited from a structure situated on an off-lying rock near the northern entrance point of Port Agios Nikolaos.

3-60 Coast.—From abreast of Arsida Island the coast trends first $3\frac{1}{2}$ miles northward and then $3\frac{1}{2}$ miles in a northwesterly direction to the eastern entrance point of Vari Bay. Besides having several rocky

projections, this stretch of the coast has several islets and dangers lying as far as $1\frac{1}{2}$ miles offshore. Therefore vessels should give this part of the coast a berth of $2\frac{1}{2}$ miles, keeping outside of the line between the western end of Arsida Island and Cape Zervi, the western entrance point of Vari Bay.

3-61 Vari Bay, about $1\frac{1}{2}$ miles wide in its entrance, recedes 1 mile in a northerly direction. The depths decrease gradually from 10 fathoms in the entrance to the 3-fathom curve located 400 yards off the beach at the head. This bay affords anchorage during the summer, and during the winter vessels can obtain shelter from westerly and northerly winds. Some houses stand at the head of the bay called Varkiza, and about 1 mile farther northward is the village of Vari.

Several islets and dangers front and lie in the entrance to Vari Bay, making entrance or exit difficult. About 1 mile eastward of Cape Zervi (Zostir), the western entrance point, from which it is separated by the main fairway into the bay, lies the small rocky islet of Latona, fringed by shallows. About 500 yards north-northeastward of Latona is the small rocky islet of Diana (Artemis), and one-half of a mile northeastward of Diana is a 3-fathom patch. Apollo (Pondikoniso), another small rocky islet, lies 1,400 yards southeastward of Latona and has depths of less than 3 fathoms extending 400 yards northwestward and 200 yards southeastward from it.

3-62 Vuliasmeni Bay (Ormos Vouliagmeni), located immediately westward of Vari Bay but much smaller, recedes about 1 mile from its entrance having a width of one-half of a mile. Lombarda (Lomvardha) Peninsula, 135 feet high, which forms the western side of the bay, is connected to the mainland by a narrow neck of sand. The

depths decrease from 15 fathoms in the entrance to the 3-fathom curve located 700 yards off the beach at the head of the bay; two small rocky islets lie a short distance off the middle part of the western shore, and the water is deep close eastward of them; a light is shown on the southernmost islet. Four lights mark the entrance into the port. This bay affords anchorage only during the summer. This anchorage is exposed to winds from southeast to southwest, and the holding ground is sand or sand and weeds.

A small settlement is located on the eastern shore; and at the head of the bay are two piers and two mooring buoys.

Kasidhis, a small rock 34 feet high, lies 400 yards southward of the southern end of Lombarda Peninsula. Shoal water extends northward from this rock, leaving a narrow passage with $4\frac{1}{4}$ fathoms near the peninsula. A 5-fathom patch, steep-to, lies 300 yards south-southwestward of Kasidhis.

3-63 Phleva (Fleves) Island ($37^{\circ}46' N.$, $23^{\circ}46' E.$, *H. O. Chart 4120*), lying about 1 mile south-southwestward of the entrance to Vuliasmeni Bay, has an irregular coast and rises to a height of 236 feet. A rock above water lies close off both the northern and southern sides of the island, and elsewhere the water is deep not far offshore. The channel northward of this island is deep and clear of dangers, having a width of 1,400 yards between the rock off the northern side of the island and the steep-to 5-fathom patch south-southwestward of the rock of Kasidhis.

Navigation is prohibited, except by special permission, within 1 mile of Phleva Island.

A light is exhibited from a white iron tower, 13 feet high, on the southern part of Phleva Island.

Prohibited Area.—Vessels may not close within 600 yards of the coast of Phleva Island.

3-64 Coast and dangers.—Cape Kavuras (Kavouri), located three-fourths of a mile northwestward of the western extremity of Lombarda Peninsula, is the extremity of a

small peninsula extending three-fourths of a mile westward from the mainland, having a width of one-fourth of a mile, and rising to heights of 118 to 138 feet. Some houses stand on this peninsula, which is covered with vegetation. The small rocky islet of Kavouras, with depths of $1\frac{1}{2}$ fathoms extending 200 yards westward from it, lies close westward of the cape, and depths of less than 3 fathoms extend a short distance from all sides of the peninsula.

An aviation radiobeacon is located on Cape Kavouras. Fixed red obstruction lights are shown from the radio tower.

Between Cape Kavuras and Aliki Point, $2\frac{1}{4}$ miles north-northwestward, the coast is indented by a bight, which is not recommended on account of irregular depths and several dangers. The small summer settlement of Kavuras is located on the eastern shore, and the larger settlement of Voula on the northeastern shore of this bight.

Praso Nisi (Prassonisi), a small islet, lies one-half of a mile off the northeastern shore of the above-mentioned bight, with which it is connected by depths of $3\frac{1}{4}$ fathoms or less. Depths of less than 3 fathoms extend 400 yards northward, and similar depths with a sunken rock and one above water extend the same distance westward from the islet. Kakuludis (Kakoulidhi) Bank, a $1\frac{1}{2}$ -fathom patch, lies 1,300 yards southeastward of Praso Nisi and 1,500 yards offshore; about 400 yards north-northwestward of this patch lies a second patch with $3\frac{3}{4}$ fathoms. Aliki (Mermingia) Rocks, lying from 1,000 to 1,600 yards southwestward of Aliki Point, from which they are separated by depths of more than 5 fathoms, are above and below water; these rocks break.

A light, shown from an iron column 13 feet high, is located on Aliki Rocks.

3-65 Coast.—Aliki (Aixoni) Point ($37^{\circ}51' N.$, $23^{\circ}45' E.$, *H. O. Chart 4117*) is the southwestern extremity of a small peninsula

extending about 1,600 yards southwestward from the mainland. On the northern side of this peninsula is a small shallow cove, named Port Aliki, suitable for small craft during southerly winds. A small rocky islet lies on the southwestern side of this cove. Some bathing establishments are located on the sandy shore of the cove. During good weather in the summer vessels can temporarily anchor seaward of Port Aliki in any convenient depth, sand, good holding ground.

From Port Aliki the coast, on which are built numerous settlements, trends $5\frac{1}{2}$ miles north-northwestward to Phalerum Bay. About midway along this stretch of the coast is Kosmas (Ayios Kosmas) (Kolias) Point, on which stands a small church. Sunken rocks extend about one-half of a mile southwestward from Kosmas Point, and from other places along this stretch of the coast rocks and shallows extend as far as one-half of a mile offshore.

An aviation light is occasionally shown from a position about one-half of a mile east-northeastward of Kosmas Point.

A light is shown on a small island $1\frac{1}{4}$ miles north-northwestward of Kosmas Point.

3-66 NORTHERN SIDE OF THE GULF OF ATHENS.—PORT OF PIRAEUS (PI-RAIEVS) (*H. O. Chart 4131*), located at the eastern end of the northern side of the Gulf of Athens, is one of the most important ports in the Mediterranean Sea. Although the principal harbor consisting of three connected basins is small, harbor works completed during recent years and continually improved, make it a modern one, equipped with modern mechanical devices for the swift loading and unloading of vessels. Besides the principal harbor, the following are subsidiary harbors: Phalerum Bay, a good anchorage for naval vessels and passenger vessels; Mounikhias Harbor, used by pleasure craft; Zeas Harbor, used by sail boats; Port Phoron, used by oil tankers; Port Heracles; Ampelaki Bay, used by idle vessels;

and Salamis Strait, used by large vessels whenever their waiting or communication with the land at Phalerum Bay becomes impossible because of unfavorable weather conditions.

3-67 Aspect.—When a vessel is approaching Piraeus from the southward, Mt. Ortholithi (sec. 3-25), Mt. Khelona (sec. 3-22), and Mt. Oros (sec. 3-35) will be seen on the western side. As Mt. Oros is brought to bear southwestward and southward, Mt. Khelona will show over it with Mt. Ortholithi in the background. On the eastern side of the Gulf of Athens, Mt. St. Elias (sec. 3-56) will be easily distinguished, and eastward of Piraeus are lofty mountain peaks.

When a vessel is in a position eastward of the island of Ægina, the peninsula forming the southeastern side of the harbor of Piraeus will appear as an island with white and red cliffs. A signal station and a church stand on the southern part of the peninsula.

It has been reported (1966) that the signal station is not visible. The Acropolis and buildings of Athens, about 4 miles northeastward of Piraeus, should also be visible. Mount Lycabettus, about 1 mile northeastward of the Acropolis, rises sharply from the city to a point and, topped by a church, is more prominent than the Acropolis. The lighthouse on the island of Psyttaleia, located westward of the entrance to the harbor, is conspicuous.

It has been reported that Piraeus is a good radar target with an echo range of 10 miles under normal conditions.

3-68 Phalerum Bay (Ormos Falirou) ($37^{\circ}56' N.$, $23^{\circ}40' E.$, *H. O. Chart 4131*), a good summer anchorage eastward of the peninsula of Piraeus, is about $1\frac{1}{4}$ miles wide in its entrance. The eastern and western shores are rocky, but the shore at the head of the bay is sandy. The depths decrease gradually from about 10 fathoms in the entrance to the 3-fathom curve located in most places about 400 yards offshore.

This bay is used in emergencies as an anchorage area for large vessels and tourist ships.

The town of New Phalerum (Neon Falliron) is built along the head of the bay, while that of Old Phalerum (Palaion Falliron) is located within Cape Theseus (Thiseos) (Colias), the eastern entrance point of the bay.

A yacht basin, anchored by two breakwaters, lies on the eastern side of Phalerum Bay about 1/2 mile northward of Cape Theseus. A spur, from which a light is shown at its head, extends southward from the elbow of the southern breakwater. Lights, in range 045°, are shown from the heads of the southern and northern breakwaters. The yacht basin has a depth of 7 feet. A sunken rock lies about 200 yards southward of the head of the spur.

Two above water rocks lie near the outer end of rocky spit which extends south-southwestward for about 1,800 yards from a point situated about 1-mile south-southeastward of Cape Theseus; a light is shown from the larger of the two rocks.

3-69 Landmarks.—Good marks during the day are as follows: A conspicuous white circular house about 600 yards south-southeastward of Cape Theseus, Aktaion Hotel, located in New Phalerum; the buildings of the yacht club and of the civil airport located, respectively, in the southeastern part and the northeastern part of the bay; Nisi Mounikhias (Stalis), a small islet located close south-westward of the western entrance point of the bay; the head of the southern breakwater at Mounikhias Harbor; a conspicuous house on a point projecting from the western shore of the bay; and the wharves in the northwestern part of the bay.

3-70 Mounikhias Harbor (Limin Mounikhias), a small circular basin formed by two small peninsulas on the western side of Phalerum Bay, is reserved for pleasure craft. Breakwaters extending from the southern and northern peninsula contract the entrance to a width of about 40 yards. In 1968 the southern breakwater was being extended 66 yards eastward. The depths decrease gradually

from about 2 3/4 fathoms in the middle to the bulwarked shore, from which project several small piers. The shore is low but toward its interior rises precipitously. A conspicuous house stands on the hill of the southern peninsula.

3-71 This section has been deleted.

3-72 Lights.—A light is shown on the heads of each of the breakwaters.

Two range beacons, surmounted by red and white triangles and from which lights are shown, are located at the head of Mounikhias Harbor. These range light beacons in range 315° lead through the harbor entrance.

Three submerged pipes extend in a southerly direction from the following approximate positions on the shore: 850 yards 009°, 1,300 yards 044°, and 1,400 yards 048°, respectively, from the head of the breakwater at Mounikhias Harbor.

3-73 Anchorage.—Phalerum Bay is open to bad weather from the south; therefore anchorage during the winter is sometimes impossible. At times during the summer strong sea breezes after midday create at its interior a swell, which prevents communication with the land, but landing is still possible with difficulty by means of Mounikhias Harbor. Vessels anchoring in the bay during the summer will escape the heat and unpleasant smells of Piraeus; it is, however, reported that unpleasant smells are often experienced within a radius of one-half of a mile of the extremity of the easternmost submerged pipe. Whenever weather conditions make Phalerum Bay untenable, vessels proceed to Salamis Strait.

The best berth is reported to be in a depth of 12 fathoms with Aktaion Hotel bearing 001°, distant 1,600 yards. To the eastward of this berth the bottom is reported to be hard and a vessel may drag.

Obstruction.—A small foul area, with a submerged obstruction, is located about one-half of a mile east-southeastward of the head of the breakwater of Mounikhias Harbor.

It was reported (1967) that there are some uncharted rocks in the harbor, with depths of less than 3 feet over them.

3-74 Prohibited anchorage.—Anchorage is prohibited in the western side of Phalerum Bay because of three pipelines which extend southward from the western part of the shore at the head of the bay. The westernmost pipeline passes close eastward of the entrance to Mounikhias Harbor. The area limits are charted as broken lines. Anchorage is also prohibited within an area extending about $\frac{3}{4}$ mile south-southeastward and about 1 mile south-southwestward of the signal station at the naval college. Submerged cables exist in this area.

3-75 Coast.—From the small peninsula forming the southern side of Mounikhias Harbor the high and precipitous coast, called Kastela, trends one-half of a mile westward to the eastern entrance point of Zeas Harbor. The peninsula of Piraeus within this stretch of the coast rises to a hill having a height of 285 feet. The small rocky islet of Mounikhias lies close off the eastern part of this coast, from which it is separated by a shallow channel, and westward of this islet depths of less than 3 fathoms with rocks above and below water extend as far as 275 yards from the shore.

3-76 Zeas Harbor, is situated on the southeastern side of Piraeus Peninsula. A breakwater protects the harbor from southerly winds; it extends east-southeastward, and east-northeastward, from the coast about $\frac{1}{2}$ mile west-southwestward of Nisi Mounikhias; a light is shown on the head of the breakwater. Another breakwater affords protection from the east, and extends from a point on land about 550 yards westward of Nisi Mounikhias, southward for about 200 yards; a light is shown on the head of the breakwater.

The entrance channel is marked by two lights on each side, and also by two light buoys on the eastern side and two light buoys on the western side.

The inner part of the harbor is used extensively by yachts.

The central part of the harbor has depths of $1\frac{1}{2}$ fathoms, which decrease gradually to the low and bulwarked shore. A quay, under construction (1967), extends 15 to 50 yards off the western side of the entrance to Zeas Harbor. The naval hospital, which has a pier, is located on the southeastern shore, and several other piers project from the shore of the harbor.

During the summer anchorage may be obtained off the entrance to Zeas Harbor in a depth of 14 fathoms, sand and weeds, with the western entrance point of the harbor bearing 338° and the islet of Mounikhias bearing 032° , distant one-half of a mile. A small vessel may anchor closer in, the bottom being sand, mud and weeds.

3-77 Coast.—From the entrance to Zeas Harbor the coast of the peninsula of Piraeus trends first one-half of a mile southwestward, then one-half of a mile westward, and finally one-half of a mile northwestward to the southern breakwater of the harbor of Piraeus. It is indented by several small bays open southward.

Kavelloupoulou (Palaska), the small bay located immediately southeastward of the above-mentioned breakwater, has on its northern shore a naval college with a pier. Open to the southwest, this bay is attacked by southerly winds. The depths at the head are shallow, but anchorage is possible in the entrance in depths of more than 5 fathoms.

3-78 The harbor of Piraeus (*H. O. Chart 4131*), which trends $1\frac{1}{4}$ miles in a general northeasterly direction, is formed between the northwestern side of the peninsula of Piraeus, on which is built the principal part of the city, and the mainland to the northward. The harbor consists of three basins named Leontos Harbor, Megas Harbor and Kophos Harbor. Open to the west, the entrance with a width of 200 yards is formed between Themistocles (Themistoklis) Break-

water on the south and Vasileios Georgios (Vasilios Yeoryios) Breakwater on the north. The former breakwater extends first 480 feet in a west-northwesterly direction and then 1,150 feet in a north-northwesterly direction, while the latter breakwater trends first 460 feet in a southerly direction and then makes a sharp turn for 280 feet in a southeasterly direction. These breakwaters do not completely shelter Leontos Harbor from westerly winds. Vessels should not approach the outer side and the head of Themistocles Breakwater closer than 40 yards.

A clock tower stands about 1,100 yards east-northeastward of the head of Vasileios Georgios Breakwater.

Vessels with a maximum draft of 36 feet and up to 750 feet long can enter and berth alongside.

Caution.—Depths of 2 1/2 to about 8 feet were reported in an area having a diameter of about 135 yards, with its center located 220 yards 300° from the light on the head of Vasileios Georgios Breakwater.

Prohibited area.—Vessels may not close within 200 feet of the coast between Cape Theseus and the root of Themistocles Breakwater.

3-79 Leontos Harbor (Limin Piraievs) (Prolimin), the outer basin, is about 900 yards in length and has an average width of 400 yards. The quayed northwestern side of this basin is used by large vessels. At the western end of this side is the Vasileiades Dockyard, and two drydocks are entered from the northeastern part of the basin. The area within the southern breakwater is available for large vessels, but the depths become shallow toward the root of the breakwater.

On the southeastern side of the basin in a position 400 yards eastward of the head of the southern breakwater is a smaller breakwater that forms a small basin, the eastern and southern sides of which are quayed; this basin with depths of 3 to 3 1/2 fathoms is used for anchoring tugs and lighters and for unload-

ing timber. Northeastward of this basin are deepwater berths used mainly for discharging timber.

Foul spots exist about 60 yards southward, and 400 yards northeastward of the head of Vasileios Georgios Breakwater.

3-80 Megas Harbor (Megas Limin) (Kentrikós Limin), the middle and largest basin, is entered from the northeastern part of Leontos Harbor by an entrance having a width of 200 yards. This basin has a length of about one-half of a mile and an average width of 700 yards. The entire basin is quayed, and the depths in most places are sufficient for vessels to go alongside. A new pier, which projects north-northeastward from the southern shore, lies with its head about 3/4 mile east-northeastward of the head of Themistocles Breakwater. This new pier, about 85 yards wide and 300 yards long, has dredged depths of 42 feet between it and the quay about 140 yards eastward.

A foul spot, marked on its northern side by a light buoy, lies about 75 yards westward of the new pier.

3-81 Kophos Harbor (Kofos Limin) (Limin Alón), the inner and smallest basin, is located northward of Megas Harbor, from which it is separated by Tzelepi Pier extending in a southwesterly direction. The western part of Kophos Harbor has been dredged to depths of 29 to 33 feet.

3-82 Lights.—A light is exhibited from a skeleton iron tower on the head of Themistocles Breakwater.

A light is exhibited from a skeleton iron tower on the head of Vasileios Georgios Breakwater.

3-83 This section has been deleted.

3-84 Anchorage.—With the exception of several berths, vessels are required to moor stern-to-shore with two anchors laid out, about 35 fathoms of chain on each one. Naval vessels of deep draft should communicate beforehand with the Captain of the Port as to the date of arrival, when he will, if possible, clear a berth. The harbor is generally full of shipping.

Mooring buoys are located throughout the harbor areas.

3-85 Pilotage is compulsory for all vessels with the exception of small local vessels. The pilot station is located at the root of Themistocles Breakwater. Ordinarily, the pilots board about $\frac{1}{2}$ mile off the breakwater. Vessels are not normally taken in at night. Merchant vessels over 1,000 gross tons are required to employ a tug.

The weather conditions are the same as those for the Gulf of Athens. The interior of the harbor of Piraeus is sheltered from all weather, and only the outer basin is attacked by west winds, from which the breakwaters do not completely protect its interior.

3-86 Cape Themistocles (Themistoklis) is located 800 yards northwestward of the entrance to the harbor of Piraeus. Within this cape are located some industrial works; the tall chimneys of the cement works are visible. About 300 yards northward of the cape is a narrow cove trending about 300 yards in an easterly direction. The southern side of this cove has two quays both about 275 feet in length, and the northern side has a short quay with a length of about 70 feet. A small foul ground area lies about 700 yards westward of Cape Themistocles.

3-87 Port Phoron (Foron), consists of Slaughter House Bay and Drapetsona Bay.

Slaughter House Bay is 250 yards north of Cape Themistocles. It has a pier with a berthing length of 623 feet and a maximum depth of 23 feet alongside. Vessels load and discharge cargoes for the chemical and fertilizer industries here.

Drapetsona Bay close northeastward of Slaughter House Bay is used as an oil depot. This bay has quays with a length of 625 feet, depths of 20 to 28 feet, and three small piers. A T-head pier, 230 feet along its face, with a depth of 36 feet, is on the southern side of the entrance. Ballards and mooring buoys are positioned in and along the bay, but vessels

must not secure to the pumping station, a stone tower located close westward of the southeastern entrance point. Southwesterly and westerly winds cause a quick, inconvenient sea, and vessels should be ready to leave their moorings at short notice to seek anchorage in Salamis Strait.

Tankers with a maximum length of 630 feet and a maximum draft of 34 feet can discharge at Drapetsona Terminal, also known as Mobile Oil Hellas Pier, the T-headed pier previously mentioned. Lines are secured to two mooring buoys and to pier bollards; additionally, an outboard bower anchor is dropped.

A light is shown from each end of the above-mentioned T-headed pier.

Pilotage for Port Phoron is compulsory for all vessels except naval vessels, Greek coastwise vessels, and sailing vessels and steamers of less than 150 tons. The pilot boards vessels in a position about 1 mile outside the harbor entrance.

3-88 Cape Keos (Keramos) is located one-fourth of a mile westward of Port Phoron. This part of the shore is known as Dhrapetsona, and a short distance inland is a small settlement with the same name. This cape forms the southeastern limit of Salamis Strait (sec. 3-98).

Two dangerous wrecks lie about 175 yards westward and 250 yards west-southwestward of Cape Keos. A light buoy is moored about 425 yards west-southwestward of Cape Keos.

Traffic signals.—Traffic signals are displayed by day near the head of Themistocles Breakwater and from the eastern side of Megas Harbor. The signals are as follows:

Three balls, disposed vertically: General prohibition of entry.

Two balls disposed vertically, over a cone point up: Entry prohibited.

Two cones, points together, over a ball: Entry and departure prohibited.

Two cones, points together, over a cone point down: Departure prohibited.

When no signal is displayed, ships may enter and leave freely.

Vessels can communicate with the signal station at the naval college (sec. 3-77) by flashing light.

3-89 PIRAEUS (PIRAIEVS) (*37°56' N., 23°39' E., H. O. Chart 4181*), the principal part of which is located on the peninsula forming the southeastern side of the harbor, is built like an amphitheatre on different elevations and hills. The plan of the city is very good, the streets being wide for the most part. The city is purely an industrial and commercial center, its activity being centered about its important harbor. Most of the import trade for Greece comes through Piraeus, but the export trade is not exceptional, because most of the products are shipped from harbors nearer to their source of production. The port has a free zone.

The population of Piraeus is about 400,000.

Quays.—The quay forming the northwestern side of Leontos Harbor has a length of 2,400 feet with 20 to 39 feet alongside. On the northeastern side of this harbor is the Grain Quay with a length of 570 feet and a depth alongside of 33 feet; this quay is equipped with a 320 ton per hour grain elevator.

The quay forming the northwestern side of Megas Harbor, the western and part of the northern quay of Kophos Harbor, is the Free Zone. This zone has a length of 1,500 yards, with 29 to 39 feet alongside, and is served by 25 electric cranes. On the northern, eastern and southern sides of this harbor are quays as follows: 2,100 feet with depths of 6 to 16 feet, 4,100 feet with depths of 21 to 26 feet; and 3,600 feet with depths of 26 to 38 feet. The new pier, about 300 yards long, on the southeastern side of Megas Harbor has dredged depths of 42 feet on its eastern side.

In Kophos Harbor there is 1,900 feet of quayage, with 25 to 33 feet alongside, in addition to the Free Zone.

There are numerous lighters and tugs available, including 6 salvage tugs.

Repairs.—Heavy repairs can be undertaken and divers are available. There are drydocks and marine railways in the port area. Several floating cranes are available, one with a maximum capacity of 100 tons. The approximate dimensions of the largest graving dock in the port are: maximum length, 496 feet 7 inches; width at entrance, 85 feet 4 inches; depth over sill, 30 feet 6 inches. A floating drydock with a lifting capacity of 15,000 tons was being put into operation in 1968.

Supplies.—Fuel oil and diesel oil are available; bunkering is done by lighters. Provisions, staples, and fresh water are available. Engine and deck supplies are also available.

Communication.—Piraeus is an important railroad center. Steamer service is available to many parts of the world. Worldwide telegraph and telephone services are available.

Radio.—The radio station at Athens is open to public correspondence.

Hospital.—Hospital facilities are available.

Deratization can be carried out. Deratization certificates and deratization exemption certificates are issued.

3-90 NORTHERN SIDE OF THE GULF OF ATHENS (continued).—Salamis Island (*H. O. Chart 4117*), the eastern extremity of which is located 2 miles west-northwestward of the harbor of Piraeus, is a large irregular-shaped island, having a maximum length of $8\frac{1}{2}$ miles in an east and west direction and 8 miles in a south and north direction. This

hilly and rocky island attains its greatest height of 1,194 feet in Mavro Vuni, located at its middle part. Both the northeastern and northwestern parts of the island are separated from the mainland by narrow, winding channels. Megara Passage (sec. 3-115), the northwestern of these channels, has been dredged and in 1966 had a least depth of 23 feet. Pines grow on parts of the island, and grain, olives, and grapes are cultivated on the level areas.

The population of Salamis Island surpasses 15,000. Salamis, located on the western side, is the principal town, and there are several secondary settlements. The naval dockyard is near the northeastern point of the island.

Salamis Light is shown on the northernmost point of Salamis Island.

3-91 Cape Konkhi (Kokhi) (*37°52' N., 23°27' E., H. O. Chart 4117*) is the southern extremity of Salamis Island. About one-half of a mile eastward of the cape and close off the southeastern coast of the island lie the two Peristeria Islets, close southward of which is a 2-fathom shoal. A non-dangerous wreck lies about $\frac{1}{4}$ mile northeastward of the easternmost islet. The 5-fathom curve is about 500 yards southward of these islets and 200 yards southward of the cape; vessels should give this area a good berth. A beacon for a measured distance stands on the eastern islet. A sunken rock with less than 1 fathom over it lies about $1\frac{1}{2}$ miles east-northeastward of Cape Konkhi and about 200 yards offshore.

A light is shown from Cape Konkhi.

3-92 Southeastern coast of Salamis Island.—Perane Bay (Ormos Perani), open to the southeastward, is located 2 miles northeastward of Cape Konkhi. Rocks lie off the shore of the bay, and in the middle of the bay is the small rocky islet of Pera.

Kakavili (Kaki Vigla) Bay (*H. O. Chart 4117*), also open to the southeastward, is the next bay northeastward of Perane Bay.

Sileniai Bay (Ormos Selinion), open to the eastward, is located $1\frac{1}{4}$ miles northeastward of Kakavili Bay, the intervening coast being indented by another unnamed bay.

Shallow depths extend 200 yards from the western shore, and 400 yards off the middle part of this shore lie the Peleiai Rocks, above and below water. On this same shore stands the small settlement of Sileniai (Selinia), fronted by wharves for small craft. The wreck of a floating dock is located in the northwestern part of the bay. This wreck reported removed in 1963.

Kynosoura (Kinosoura) (Sedukia) Point, the easternmost extremity of Salamis Island, is the termination of a narrow tongue of land extending 2 miles eastward from the northern end of the head of Sileniai Bay. Depths of less than 3 fathoms extend 100 yards eastward from the point, and the water is deep along the entire southern side of this tongue of land.

A light is shown near the extremity of Kynosoura Point.

A prohibited anchorage area lies northward of Kynosoura and extends northwestward to near the southern entrance of St. Georgios Channel.

3-93 This section has been deleted.

3-94 Psyttaleia (Psittalia) (Lipso) island ($37^{\circ}56' N.$, $23^{\circ}35' E.$, *H. O. Chart 4130*), about one-half of a mile southeastward of Kynosoura Point, divides the southern approach to Salamis Strait into two channels, Kermos Strait (Póros Themistokléous) on the east and Kynosoura Point (Póros Aiyinitón) on the west. This island, a good mark for the entrance to the harbor of Piraeus, has a length of 1,600 yards in a northeasterly and southwesterly direction, an average width of 400 yards, and a maximum height of 149 feet in its middle part. The southeastern side of the island has deep water near it, and the 3-fathom curve is not more than 100 yards off the northwestern side, where northward of the lighthouse and close offshore is a small rock above water.

Cape Ameinios is the name of the point southward of the lighthouse, and the small cove immediately westward of the cape has deep water close to its precipitous shores. Near the lighthouse are some white tombs, resembling beacons, and on the summit of the island stands a war memorial, a monument with a mast.

A light is exhibited from a gray cylindrical masonry tower with dwelling, the whole 46 feet in height, on the northeastern end of Psyttaleia Island.

3-95 Atalante (Atalandi) Islet, small and bare, is located 700 yards west-southwestward of the southwestern extremity of Psyttaleia Island, from which it is separated by great depths. The 3-fathom curve is about 50 yards off the northern and eastern sides of the islet, and this same curve, inside of which are rocks, is about 150 yards southwestward of the islet. Extending another 700 yards southwestward from the 3-fathom curve is Atalante (Atalandi) Reef, having depths of less than 5 fathoms.

A light shown from a metal framework tower, 16 feet high, is on the summit of the islet.

Khoirades Skrophes (Propetes Rock), a dangerous rock above water, lies 1,600 yards west-southwestward of Atalante Islet. Depths of less than 4 fathoms extend 500 yards eastward from this rock, and between them and Atalante Reef is a narrow passage with depths of 6 to 10 fathoms. The passage westward of Khoirades Skrophes is deep and clear of dangers.

3-96 Keramos Strait (Póros Themistokléous), the main entrance to Salamis Strait from the south, is 1,100 yards wide between Cape Keos of the mainland on the east and Psyttaleia Island on the west.

Foul ground exists about 550 yards south-southeastward of Cape Keos.

3-97 Kynosoura Strait, the other southern entrance to Salamis Strait, is about one-half of a mile wide between the northwestern side of Psyttaleia Island and the long tongue of land terminating in Kynosoura Point. Being deep and clear of dangers, this strait is easy to navigate.

3-98 Salamis Strait (Ormos Keratsiniou), a bay with a length of 3 miles in an east and west direction and an average width of 1,600 yards, is located between the mainland on the north and Psyttaleia Island and the long tongue of land of Kynosoura Point on the south. The bay has general depths of 17 to 16 fathoms, which shoal gradually on the northern side and rapidly on the southern side. Anchorage is possible for all types of vessels and during almost all weather because the bay is attacked only by westerly winds, which sometimes attain an intensity dangerous only to small craft. This bay is a subsidiary harbor for Piraeus, being used by vessels waiting to enter the main harbor or by vessels unable to communicate with the shore in Phalerum Bay on account of unfavorable weather conditions. The bay is used also by naval vessels.

The historical naval battle of Salamis was fought in Salamis Strait.

Foul ground exists about $\frac{3}{4}$ mile northward of Psyttaleia Island light.

Prohibited area.—Navigation is prohibited except by special permission within Straits of Salamis, but navigation is permitted from sunrise to sunset in the Straits of Salamis, from a position close off the eastern side of the northeasternmost fairway buoy of St. Georgios Channel (sec. 3-103), in a 004°-184° direction, within a width of 400 yards throughout the straits.

Anchorage.—There are convenient anchorage depths almost anywhere in Salamis Strait, but if a vessel is to remain for any length of time, it will be necessary to moor, as heavy squalls blow from the high land.

Prohibited anchorages.—Anchoring is prohibited in the vicinity of a submarine cable

which is laid from Salamis Island northeastward to the southern extremity of Leros Island (sec. 3-104). Other cables are laid in an easterly direction from the naval dockyard to the mainland. Anchorage is also prohibited in the vicinity of two water mains which are laid in a northeasterly direction from Cape Arapis, about $\frac{1}{2}$ mile northeastward of the northern mole at the dockyard, to the mainland. The exact limits of these areas are indicated on the chart by dashed lines.

Pilotage is compulsory for Salamis Strait and the remainder of the Gulf of Athens to the northward of it.

3-99 Port Heracles (Agios Georgios) (Limin Irakleous) (37°58' N., 23°36' E., H.O. Charts 4131 and 4130) an artificial harbor at the eastern end of Salamis Strait, is protected by three breakwaters from southerly winds that attack the recess of the Gulf of Athens. The larger breakwater extends 580 yards west-northwestward from the southern limit of the harbor, and passes through the northern of two islets, lying in the southern part of the harbor; a light is shown from the head of the breakwater. Work was in progress (1964) on the northern side of the larger breakwater. The shortest breakwater, 400 yards north-northwestward from the end of the latter one, extends about 160 yards east-southeastward; a light is shown from the head of the breakwater. A breakwater, with its root about 700 yards northwestward of the head of the larger breakwater, extends about 375 yards south-southeastward from the shore. A light is shown from the head of the breakwater. The entrance is 400 yards in width. Depths of less than 3 fathoms extend as far as 80 yards in all directions from these islets. The greater part of the harbor has depths of 7 to 5 fathoms. The ruins of a magazine stand on the summit of a small peninsula forming the northwestern entrance point of the harbor.

Keratsini Pier extends from the northern section of the harbor in a southwesterly direction for about 350 yards. The depths are 42 feet along the northwestern and southern sides, and 36 feet along the southeastern side. In 1968 it had not yet been put into service.

The power station with six conspicuous smokestacks is located immediately north-eastward of the breakwater root. Three piers project from the eastern side of the harbor and on the northern side of the harbor is an iron foundry quay. One pier has 36 feet alongside. The northeastern side of the southernmost of the three piers has a reported (1967) depth of 6 fathoms. It has been reported (1967) that depths in the fairway leading to the above pier have been deepened from 6 1/2 to 7 fathoms.

Wrecks.—Two wrecks lie in the harbor; one lies close northward of the root of the short breakwater, and the other lies about 60 yards southward of the head of the southern (customs) pier.

Shoal.—A rocky patch, part of which may be above water, lies 400 yards 023 from the head of the breakwater, and the depths between this patch and the northern shore are less than 3 fathoms.

Mooring buoys.—Two mooring buoys front the three piers and are moored about 400 yards east-northeastward of the head of the larger breakwater.

3-100 Shell Oil Company (37°58' N., 23°35' E., H. O. Chart 4130) is located about midway along the northern shore of Salamis Strait; it can be recognized by a conspicuous smokestack. From this oil depot projects a jetty with a length of about 575 feet and a depth of 31½ feet close to. A light is shown from the head of the jetty. About 250 yards eastward of the jetty is a small pier equipped with a 2-ton crane. Two mooring buoys are located on the western side, and a third on the eastern side of the jetty. Vessels moor with the stern to the jetty and bower anchors laid well ahead. Many mooring lines are used, as the wind may suddenly start blowing strongly. Landing is prohibited.

Two 400-foot piers, one a T-head, are about 500 and 830 yards westward respectively, of the above jetty. Mooring buoys

are moored in the vicinity of both piers.

Lights are shown on the head of each of the piers.

A wreck, with 46 feet over it, lies about 200 yards south-southeastward of the head of the T-head pier.

The village of Perama is located about 1 mile westward of the oil depot, and along the intervening shore are shipyards for small craft. A ferry runs to Salamis Island from a station at the western end of the village.

A pier about 100 yards wide, and extending about 475 yards southward from Perama, has two drydocks attached to its outer end. The pier recedes about 250 yards northward, on its eastern side, to a dock parallel to the shore extending about 450 yards eastward to an enclosed small boats harbor. The berths along the dock and on the eastern side of the pier have a least depth of 25 1/2 feet.

A light is shown from the head of a small pier extending southward from the southwestern side of Perama.

3-101 Ampelaki Bay (Ormos Ambelakion) (Ambelaki Bay), located at the western end of Salamis Strait, is 500 yards wide in the entrance and recedes 1,400 yards in a westerly direction. The depths in the entrance are more than 8¼ fathoms, decreasing gradually toward the sandy beach at the head. On the northern side near the head are four wharves, available only for small craft. Idle vessels use this bay, whenever their stay in the harbor of Piraeus is impossible for lack of space. Bollards for the use of these vessels are located on both the northern and southern shores. The town of Ampelaki (Ambelaki) is located 800 yards westward of the bay, with which it is connected by a highway.

Pounta (Pounda) Shoal, having a least depth of 2¾ fathoms, lies about 350 yards eastward of Pounta (Pounda) Point, the northern entrance point of Ampelaki Bay. Vessels anchoring in this part of Salamis

Strait must avoid this shoal. A cylindrical light buoy is moored on the northeastern part of this shoal, in 4 fathoms of water.

3-102 St. Georgios (Ayios Yeoryios) Island, located 1,200 yards northwestward of Pounta Point, is separated from the eastern side of Salamis Island by Ampelaki Channel and Paloukia Bay. On the southeastern part of this small and low island stand the buildings of the quarantine station for Piraeus, fronted by several wharves for the use of small craft. The northern part of the island is covered with pine trees.

Numerous mooring buoys are located offshore between St. Georgios Island and Arape Point.

Shoal.—A rocky shoal with a least depth of 16 feet lies about 500 yards northward of the northeasternmost point of St. Georgios Island. The northeastern edge of this shoal is marked by a lighted can buoy.

A wreck, dangerous to navigation and marked by two buoys painted green, lies about 400 yards east-northeastward of the northern extremity of St. Georgios Island. Vessels should pass westward of this wreck.

A submarine cable, which connects Salamis Island to the mainland, is laid in a general east-northeasterly-west-southwesterly direction between St. Georgios Island and the 16-foot rocky shoal northward. Anchorage is prohibited within 110 yards of either side of the cable.

Ampelaki (Ambelaki) Channel (Póros Kamaterón) separating the southern side of St. Georgios Island from Salamis Island, has a width of 400 yards with a least depth of 1 fathom. On the southern shore of this channel is the settlement of Kamatero, having wharves for small craft.

Paloukia Bay (Ormos Paloukion), located immediately westward and northwestward of Ampelaki Channel is open to the east but is partially sheltered from this direction by St. Georgios Island. The depths are less

than 3 fathoms and much less near the shores. The village of Paloukia, located on the northwestern shore, has wharves for small craft, and similar wharves are found along the southwestern shore.

An obstruction blocks Paloukia Bay between Salamis Island and the northwestern extremity of St. Georgios Island. Therefore, the approach to the village of Paloukia must be by Ampelaki Channel.

3-103 St. Georgios (Ayios Yeoryios) Channel is the principal southern entrance for vessels passing from Salamis Strait into the passage separating the naval dockyard on the eastern side of Salamis Island from the mainland to the east. The eastern part of the water area between St. Georgios Island and the ferry station at Perama is shallow. Permatos Road (Poros Peramatós), which lies between Perama and a shoal 1/4 mile westward, is blocked by an obstruction. St. Georgios dredged channel, westward of Permatos Road, has a least depth of 35 feet.

Having navigated St. Georgios Channel and being bound for the naval dockyard, vessels should not immediately alter course for the dockyard but should continue steering northward for a distance of at least 800 yards in order to avoid the shoal lying northward of St. Georgios Island.

Wreck.—A dangerous wreck lies about 2/5 mile southeastward of the northern extremity of St. Georgios Island.

Light buoys.—Six light buoys mark the fairway of St. Georgios Channel.

Stone bases of pylon remains are located about 375 and 875 yards eastward of St. Georgios Island.

A light is shown from the head of a small pier located about one-half of a mile northward of Perama.

3-104 Naval dockyard (37°59' N., 23°32' E., H. O. Chart 4130).—The establishments of a naval dockyard occupy that part of the

eastern shore of Salamis Island commencing about 600 yards northward of St. Georgios Island. Near these establishments rise several heights, one being 704 feet high. Two moles, the southern one extending in an easterly direction and the northern one extending in a southerly direction, form a basin fronting the establishments, and numerous mooring buoys are located in this basin.

A light is shown on the head of the northern and southern moles.

Lights are shown on the heads of two piers within the basin.

Three floating drydocks are close northward of the northern mole. The largest is 360 feet long, 70 feet wide, and has a lifting capacity of 3,000 tons.

Leros Island, located on the western side of the entrance to Eleusis Bay and Skaramankas Bay, located on the eastern side of the same entrance, are a part of the naval dockyard. Entry to and passage through this entire area is supervised and permitted only during the daytime.

Submarine cables in this area are described in section 3-98.

Leros Island, 209 feet high, lies northward of the dockyard, from which it is separated by Arape (Arapis) Point. Two mooring buoys are located about $\frac{1}{4}$ mile northward of Arape Point. Inland of Arape Point is the above-mentioned height of 704 feet. This island is connected to Salamis Island by a causeway. An ammunition pier, about 460 feet long, extends east-southeastward from the southern extremity of the island.

Prohibited areas and prohibited anchorage areas are indicated on the chart by dashed lines.

3-105 Skaramankas (Skaramange) Bay slightly indents the mainland eastward of Leros Island. Pharmakousai (Farmakousai) Islets, two islets, connected to each other and to the mainland by causeways, lie westward of Molaki Point, the northern limit of the bay. A light is shown on the westernmost islet.

A T-head pier, with a length of 150 feet at its head and depths of 42 feet alongside, extends from the eastern side of the westernmost islet. Two mooring dolphins are moored in the vicinity of the pier. From a position about $\frac{1}{3}$ mile south-southwestward of Molaki Point, a breakwater extends about 100 yards southwestward, and 140 yards south-southwestward; a submerged portion extends 185 yards farther on the latter alinement. A light is shown on the breakwater.

A foul area is about $\frac{1}{4}$ mile north-northwestward of Molaki Point. A wreck lies about $1\frac{1}{2}$ miles north-northwestward of Molaki Point. Arpedone (Arpidhoni), a small islet, lies on the extremity of a shallow tongue extending $\frac{1}{4}$ mile from the southeastern shore of the bay. A light is shown from a structure standing on the western end of Arpedone Islet. A prohibited area, about 320 yards long in an easterly direction by 440 yards long in a southerly direction, lies with its northwestern corner about 140 yards west-southwestward of the western extremity of Arpedone Islet.

Point Filatouri (Phylatoure), the southern limit of Skaramankas Bay, is situated about 1,260 yards southwestward of the above light. A light is shown on Point Filatouri.

A water main is laid from Arape Point northeastward to the light on the head of the breakwater enclosing the northwestern portion of Skaramankas harbor. Another main is laid from Arape Point northeastward to a position on the mainland eastward of Arpedone Islet. These mains and the prohibited anchorage areas, about 500 feet either side of the respective mains, are indicated on the chart by dashed lines. The northern limit of the protected anchorage area is marked by buoys.

Caution.—The light on the breakwater at Skaramankas harbor should be given a berth of not less than 225 yards because of the submerged portion of the breakwater.

3-106 This section has been deleted.

Tugs—Pilotage.—Two tugs will remain at the berthing position during the stay of a tanker. A Royal Arsenal Officer will pilot ships through the entrance channel.

3-107 **Eleusis Bay (Kolpos Eleusinos)** (*H. O. Chart 4117*), the northernmost part of the Gulf of Athens, appears almost like a lake, being limited on the south by the northern coast of Salamis Island and on the east, north, and west by the mainland. The bay has a length of 9 miles in an east and

west direction, an average width of 2 miles, and general depths of 18 to 7 fathoms.

A torpeuo range, indicated on the chart by dashed lines, extends down the center of Eleusis Bay in an easterly and westerly direction. The bay is also a submarine exercise area; see section 1-28.

Ormos Palaska is a slight indentation in the southeastern shore of Eleusis Bay. On its southeastern side is a shipyard with several quays and jetties. On its northwestern side is a breakwater. A light is exhibited from an iron post at the head of the breakwater. Mooring buoys are located off the head of the breakwater.

A foul area, marked by three buoys, is about 475 yards northward of the breakwater in Ormos Palaska.

Prohibited Area.—A buoy marks the northeast corner of the prohibited area northward of Ormos Palaska, and is moored about 800 yards north-northeastward of the head of the breakwater; another buoy is moored about 800 yards northeastward of the head of the breakwater and near the northeastern limit of the prohibited area.

About $2/3$ mile northeastward of the light at Ormos Palaska is a shipyard facility consisting of an L-shaped mole and two floating drydocks. The mole is about 335 yards long with 32 feet alongside. A cylindrical mooring buoy is moored about $2/3$ mile north-northwestward of the head of the mole.

The dimensions of the largest drydock are: maximum length, 711 feet; width at entrance, 121 feet; depth over keel blocks, 31 feet.

A 100-ton floating crane and cranes of 4 to 30 tons capacity are available.

A spit with a depth of $1\frac{1}{2}$ fathoms at its outer end extends 400 yards northwestward from the northernmost point of Salamis Island, and about 700 yards west-northwestward of this same point lies a detached rocky patch of $1\frac{1}{2}$ fathoms. Along the shore eastward of the northernmost point of the island the 3-fathom curve is about 150 yards offshore.

Vasilika Bay, located along the western half of the northern side of Salamis Island, recedes about 1,500 yards in an easterly direction. The 3-fathom curve is about 400

yards offshore, and 1,400 yards southwestward of the northern entrance point is a detached $4\frac{1}{2}$ -fathom patch. A few houses are located at the head of the bay, where a limited supply of water is available from wells. About midway along the northern side of a promontory extending $1\frac{3}{4}$ miles westward from the southern side of the bay is Phaneromeni Monastery, (Moni Faneromenis), with a small settlement, and at the extremity of this promontory is a ferry landing. Along this promontory the 3-fathom curve is 200 yards offshore.

3-108 New Peramos (Nea Peramos) is located on the northern shore of Eleusis Bay in a position 1 mile northward of the promontory extending westward from Vasilika Bay. This settlement has wharves for fishing craft, and southward of the settlement is a commercial airport with a conspicuous mast, buildings, and a wharf. Northeastward of the settlement is the summer resort of Megalo Pevko, where the shore is sandy with pine trees in the interior. A conspicuous church is in the settlement. A sunken wreck lies about one-half of a mile northeast of New Peramos. From this resort the shore trends about 1 mile northeastward and then 2 miles eastward to Ayios Nikolaos Point; along this shore the 3-fathom curve is close offshore. Mount Kerata (Trikerato), about $1\frac{1}{4}$ miles northwestward of Ayios Nikolaos Point, rises to a height of 1,542 feet, and westward of this peak are several lower ones.

Northeastward of Ayios Nikolaos Point is formed Tourkolimano Bay, and eastward of this bay and immediately westward of the town of Eleusis is Vlikha Bay. Both bays are open to the south and separated from each other by a small promontory, toward the interior of which are low hills less than 100 feet in height. At the heads of these bays are factories with conspicuous smokestacks, small wharves, and moles. An ore-loading pier, about 165 feet long and with a number of large vessel mooring buoys off it, is located in Tourkolimano Bay. This bay has depths of 8 fathoms in its inner part, the 3-fathom curve being about 150 yards offshore. Vlikha Bay has less depths,

the 3-fathom curve being 400 yards off the northwestern shore, but the depths in the eastern part are sufficient for anchorage. There are several mooring buoys in the bay.

A light is shown from the head of the eastern pier at Eleusis. Another light is shown on the head of the western pier. A dangerous wreck lies about 1 mile southward of the or the western pier. A stranded wreck lies about 2 miles westward of the head of the eastern pier. A prohibited area just eastward of Eleusis extends about 1/2 mile south-southeastward from the shore. A light is shown from a position slightly more than 2 miles eastward of the head of the eastern pier at Eleusis; work was in progress (1965) in the vicinity of the light.

Anchorage.—A good berth for a large vessel in Vlikha Bay is in a depth of 6½ fathoms, mud, about 200 yards westward of that part of the shore having inland of it a conspicuous clock and smokestack.

3-109 Eleusis (Eleusis) (38°02'N., 23°33' E., H.O. Chart 4117), a town of about 6,500 inhabitants is located on a projecting part of the northern shore of Eleusis Bay.

Berths.—A pier close westward of the town extends 260 feet southeastward. A pier extending about 380 feet in a southerly direction is located about 700 yards northwestward of the head of the eastern jetty at Eleusis. Depths alongside are 18 to 12 feet. Vessels lying at this pier should be prepared to leave should strong onshore winds arise. A pier 260 feet in length with a depth of 20 feet alongside is located near the eastern side of the town. A pier extends about 600 feet southward from the coast 400 yards eastward of the harbor entrance. There are depths of 29 to 32 feet alongside its southern half. Two mooring buoys lie close off the pierhead. A pier used for loading ore is located about 2 1/2 miles westward of the town. Several mooring buoys lie close southward of the pier.

Communications.—Postal, telegraphic and customs facilities are available. Coastwise vessels call at the port.

Hospitals.—A municipal hospital is located here.

3-110 Southwestern and western sides of Salamis Island (H. O. Chart 4117).—From Cape Konkhi (sec. 3-91) the southwestern coast of Salamis Island trends 2½ miles northwestward to Kanakia Point. It is indented by several small coves, and although the depths are great along this coast, numerous rocks and small rocky islets lie close

offshore. Trimesa, one of these rocky islets having a rock close northward of it, lies 400 yards off the middle of this coast, from which it is separated by great depths. A submarine exercise area is charted westward of Salamis Island; vessels are cautioned to maintain a good lookout while passing through it.

Kanakia Bay indents the western coast close northward of Kanakia Point. The 5-fathom curve is 400 yards off the head of the bay. Kanakia Islet, 283 feet high, with a smaller islet close westward of it, fronts the northern part of the bay. The 5-fathom curve is close off both of these islets, and vessels can pass eastward of the islet, where anchorage can be obtained in a depth of more than 6 fathoms. A light is shown from a concrete column on the northeastern end of the smaller islet. Between Kanakia Bay and Cape Petrite (Petritis), 1¼ miles northward, the western coast is clear of dangers except for a charted foul area 1 mile westward of Cape Petrite.

3-111 Salamis Bay (Ormos Salaminos), the large bay indenting the northern part of the western side of Salamis Island, is 1¾ miles wide in its entrance and recedes first 3 miles in an easterly direction and then 2 miles in a northeasterly direction. The depths are great near the shores of the outer part of the bay; the head of the bay, on the northern shore of which is built the town of Salamis, is shallow, the depths being less than 3 fathoms. On the eastern shore in a position one-half of a mile southward of the town are the conspicuous ruins of an ancient mill, and from this position a chain of shallow rocks extends 400 yards westward from the shore. A conspicuous house stands on the eastern shore about ¼ mile southward of the town. The shore in front of the town is quayed, and here stands a conspicuous tomb.

Karas Point, the northern entrance point of Salamis Bay, rises to a height of 134 feet, and close eastward of this point and separated from it by a small cove with depths of more than 6½ fathoms is another pro-

jecting point with a height of 144 feet. A light is shown on Karas Point.

Prohibited Area.—Navigation is prohibited within 1/2 mile of the southern shore of Salamis Bay between positions 1 and 2 miles eastward of Cape Petrite.

Mastiff Bank, a rocky shoal with a least depth of $3\frac{3}{4}$ fathoms, lies 1,600 yards southwestward of the northern entrance point of Salamis Bay. Being about in the middle of the entrance to Salamis Bay, this shoal can be avoided by keeping to the southern or the northern shore of the bay. Vessels bound for St. Georgios Bay can avoid this shoal by keeping the eastern extremity of the island of Trupika open westward of the northern entrance point of Salamis Bay.

A wreck is located close eastward of Mastiff Bank.

3-112 Anchorage.—Good anchorage in a depth of about 5 fathoms, mud, can be obtained 700 yards southwestward of the small mole at the western end of the quayed shore at the town of Salamis.

Large vessels can anchor in a depth of 12 fathoms, firm mud and sand, about 1,400 yards southward of a small church located 1,500 yards westward of the town of Salamis.

Prohibited area.—A area prohibited to shipping begins about 1 mile east of Karas Point. It is about 800 yards wide and extends about 1 mile offshore.

A light is exhibited from an iron post at the outer end of a small spur jetty at the town of Salamis. An obstruction lies sunk about one-half of a mile 236° from the light.

3-113 Salamis, commonly called Koulouri, is a town of about 7,500 inhabitants. The quayed shore and two jetties can be used only by small craft. The town has an olive oil industry. Although water is not available, provisions can be procured in small quantities. Salamis has customs, postal, telephone, and telegraph facilities.

Mulke (Aiandion), a small settlement, is located inland a short distance at the southeastern recess of Salamis Bay.

3-114 Southwestern approach to Eleusis Bay.—This approach is formed between the northwestern part of Salamis Island and a narrow tongue of land extending $1\frac{2}{3}$ miles eastward from the mainland and termi-

nating in Tikho (Toikhos) Point. At the base of this tongue of land is an ancient wall in ruins, and about midway along the tongue and within Tikho Point are hills, respectively, 292 and 226 feet high. Off the southern shore of the tongue, where depths of less than 5 fathoms are found as far as 200 yards offshore in places, are the 2 uninhabited islands of Rhevituza and Trupika.

A small point of land extends southward from the above-mentioned 292-foot hill. On its eastern side a T-shaped tanker pier extends 220 yards southeastward, its head being 69 yards long. With the aid of mooring buoys vessels up to 750 feet in length, with drafts up to 40 feet, can berth alongside. Pilotage is compulsory for this pier. Pilots board about 3 miles south of the pier, off Salamis Island.

About 500 yards southward of the point lies Rhevituza (Revithousa), an island 154 feet high. The channel separating the island from the projection is deep, but depths of less than 3 fathoms extend a short distance from the northern and western sides of the island. A rocky shoal with a least depth of $3\frac{1}{4}$ fathoms lies 400 yards westward of Rhevituza. A wreck lies sunk about 1 mile 328° from the northwestern extremity of Rhevituza.

A light is shown near the eastern extremity of Rhevituza.

Trupika (Makronisos), extending 1,600 yards in an east and west direction and having a height of 135 feet at its eastern end, lies one-half of a mile northeastward of Rhevituza and is separated from the above-mentioned tongue of land by a passage with a width of more than 200 yards and depths of 5 to 4 fathoms along the axis. The usefulness of this passage is doubtful.

A light is shown on both the eastern and western extremities of Trupika. A light is shown from a point lying about 1/4 mile southeastward of the eastern extremity of

3-115 St. Georgios (Ayios Yeoryios) (Trupika) Bay, which indents the northwestern part of Salamis Island, has its entrance divided into a southern and a northern part by the island of Trupika and the

tongue of land from the mainland. Depths of less than 3 fathoms extend about 150 yards from the shores of this bay. Anchorage can be taken about 500 yards westward of the sandy head in a depth of 5 fathoms, firm mud and sand. Having a minimum width of 400 yards, the southern entrance to the bay has a least depth of 7 fathoms along its axis.

Megara Passage, the northeastern continuation of the northern entrance to St. Georgios Bay, is the western entrance to Eleusis Bay. This passage has a dredged channel which, in 1968 had a least depth of 26 feet and a width of 325 feet. The axis of the channel bears 031°-211°. The fairway of the channel is indicated by the alinement of three white range beacons, in range about 211°, located on the coast in a position about three-fourths of a mile west-northwestward of Tikho Point.

The sides of the channel are marked by eleven light buoys.

The peninsula forming the northern side of St. Georgios Bay has a height of 184 feet at its western end and a height of 453 feet in its middle part. As depths of less than 3 fathoms extend 200 yards from the shore of this peninsula, vessels navigating Megara Passage should round the southwestern, western, and northwestern extremities of the peninsula at a distance of 300 yards.

3-116 Tikho Bay (Ormos Vourkadhi), the southern shore of which is formed by the tongue of land extending 1 2/3 miles eastward from the mainland, is shallow, having depths of less than 1 fathom as far as one-half of a mile from the head and depths of less than 3 fathoms up to the entrance located on the western side of the fairway of Megara Passage. A rocky patch with a least depth of 1 foot lies a short distance within the middle of the entrance.

3-117 Megara Bay (Gulf of Ægina) (Kolpos Megaron) (*H. O. Chart 4117*), about 12½ miles long in an east and west direction, is that part of the northern side of the Gulf

of Athens between the western side of Salamis Island and Theodoro (Ayioi Theodoroi) Point. The western half of the northern shore is precipitous, and the northwestern shore is low, covered with pines, and backed by mountains. Almost the entire shore of the bay has great depths near it and is free from dangers. The interior of the bay is subject to strong northerly winds, which make navigation dangerous for sailing vessels.

The town of Megara, located about 1 mile inland of the eastern part of the northern shore, is built like an amphitheatre on two hills. The only other inhabited place along the bay is the village of Kineta, located at the northeastern end of the northwestern shore. About one-half of a mile northward of Theodoro Point stands a small church.

3-118 The anchorage, or landing place, for the town of Megara, is southward of Agios Georgios (Ayios Yeoryios), a 298-foot hill located near the shore 1½ miles southeastward of the town. A projection, on which a light is shown, extends southward from the shore, and farther southward are, respectively, the islets of Pakiaki (Pakhaki), 52 feet high, and Paki (Pakhi), 164 feet high. The channel between the two islets has a width of 350 yards, but a 3¼-fathom patch lies in midchannel.

Wrecks.—A wreck, marked by a white conical buoy, lies sunk about one-third of a mile northward of the eastern extremity of Paki Islet. Another wreck lies sunk close northward of the northwestern extremity of Paki Islet, in the passage between that islet and Pakiaki Islet.

The channel between the islet of Pakiaki and projection from the shore has a width of about 200 yards and depths of 33 to 39 feet in midchannel.

Small steamers and sailing vessels anchor in depths of 5 to 3¾ fathoms, mud, northeastward of the islet of Pakiaki. The projection from the shore has a small mole for small craft. A dangerous wreck, with 10 fathoms over it, lies in the eastern part of

the anchorage area. Three-fourths of a mile westward of the projection are the Skironian Rocks, above and below water, extending 400 yards southward from the shore.

3-119 Submarine exercise area.—There is a submarine exercise area between Megara Bay and the Diaporii Islands (sec. 3-52).

3-120 Prohibited anchorage.—A prohibited anchorage area, the limits of which are indicated by dashed lines on the chart, is established in the northeastern part of Megara Bay off the western entrances to St. Georgios Bay. This area extends about 1 mile south-southwestward and 2 miles westward and west-northwestward from the eastern end of Trupika Island.

3-121 Megara, having a population of about 10,500, is an important industrial and farming center. It is located in the middle of a small but fertile plain, which produces a considerable quantity of grain, grapes, olives, and fruit. Resin is another product of this vicinity. A small pier and a small wharf in the harbor have depths of 3 to 10 feet alongside. The harbor provides good shelter for large cargo vessels at anchor; lighters are used for working cargoes. The town has postal, customs, telephonic, and telegraphic facilities. Besides railroad and highway communication, local small steamers call at the anchorage.

3-122 Kekhries Bay (*H. O. Chart 4117*), the northwestern recess of the Gulf of Athens, is entered between Theodoro Point on the north and Cape Spiri on the south. This bay recedes 8 miles in a westerly direction and decreases in width from $7\frac{1}{2}$ miles in the entrance to an average of 4 miles for the greater part of its length. Except for Kalamaki Bay and Kenkhreon Bay the depths in the greater part of the bay are too great for anchoring. Both the northern and southern sides of the bay are backed by mountains; Geraneia (Yerania) Ori, the range on the northern side, attains a height of 4,494 feet in Mt. Geraneia (Yerania) (Oros Makryplagi).

The southern shore of Kekhries Bay is rugged and steep-to. From Cape Spiri it trends first northwestward for 4 miles and then westward for $5\frac{1}{2}$ miles. The first stretch is indented by Kirkati Bay, Amoni Bay, Dimani Bay, and Port Franco (Frango-

limano), while the second stretch is indented by Linari Bay, Sidherona Bay, and Almiria Bay (Ormos Almiris). All of these small bays are without interest.

Kekhries Point, a precipitous point, 148 feet high, with a tower on it, projects from the middle part of the western shore of Kekhries Bay. Kenkhreon Bay, the bay northward of the point, has depths of 21 to 12 fathoms and a steep-to sandy beach. When anchoring in this bay, a vessel should take a berth close offshore, as the land wind in summer is so strong that the anchor is liable to drag suddenly into deep water. At this bay is located the small settlement of Kenkrea (Kekhriais), and water is available from springs.

From Theodoro Point the northern shore of Kekhries Bay trends 4 miles westward to Susaki (Sousaki) Point, the eastern limit of Kalamaki Bay. This bold shore has near it rocks and deep water, the 5-fathom curve being only 200 yards offshore in most places. About one-half of a mile northward of Susaki Point is the village of Susaki (Sousaki).

A light is shown from a framework structure on Susaki Point.

Islets.—Two islets lie about $1\frac{1}{2}$ miles off the southern shore of Kekhries Bay. Evraios, the eastern islet, has a height of 269 feet. Depths of 5 fathoms extend about 200 yards off the northern side of the islet, and rocks above water the same distance westward from the western extremity. A stranded wreck lies close off the northeastern side of the islet. Platia, 88 feet high, lies about $2\frac{1}{2}$ miles west-northwestward of Evraios. This islet has depths of 4 fathoms extending 200 yards off its northern part and a $3\frac{3}{4}$ fathom patch lies about 400 yards from the northern end of the islet.

3-123 Prohibited anchorage.—Submarine cables are laid in the northern part of Kekhries Bay from a position one-half of mile eastward of Theodoro Point to a position $1\frac{1}{2}$ miles westward of Susaki Point. Anchorage is prohibited in this area, the limits of which are indicated on the chart by broken lines.

3-124 Kalamaki Bay ($37^{\circ}54' N.$, $23^{\circ}01' E.$, *H. O. Chart 4117*), the northwestern recess of Kekhries Bay, owes its importance to the Corinth Canal. The entrance to the bay is 2 miles wide between Susaki Point on the east-northeast and Cape Sofia (Sophia) on the west-southwest. Although the bay is open to the southeastward, the water at its interior is smooth. The bay, however, is surrounded for the most part by high land, and the winds from different directions are strong at its interior, especially the north winds which swoop down with violence from the Geraneia Ori, even during the summer.

Akrokorinthos, a 1,880-foot summit rising from the southern part of the low isthmus separating the Gulf of Athens from Corinth (Korinthos) Bay, is located about $6\frac{1}{2}$ miles westward of Kalamaki Bay; it is a good landmark for vessels approaching the bay. Other landmarks are the lighthouse on Susaki Point, the village of Susaki, the village of Kalamaki, the buildings of the canal company at Isthmia, and the conspicuous white excavations from the canal on the western shore of the bay.

3-125 Southeastern entrance to Corinth Canal (Dhiorix Korinthou).—This entrance, located on the western side of Kalamaki Bay, is sheltered from the east by a breakwater

curving over 200 yards in a southerly direction from the shore close northward of the entrance.

The canal is fully described in *H.O. Pub. No. 54, Sailing Directions for the Mediterranean, Vol. III.*

3-126 Anchorage.—The northwestern part of Kalamaki Bay can accommodate vessels of any size in depths of 19 to 6 fathoms, sand or mud. The best berth for a large vessel is in a depth of 17 to 16 fathoms, sand, with the village of Kalamaki bearing 006° , distant one half of a mile, and the northern extremity of Akrokorinthos bearing 261° . Vessels can anchor also 500 yards north-northwestward of this berth in a depth of 12 to 10 fathoms, and small vessels can take anchorage in a depth of 6 fathoms, mud, off the pier at the village of Kalamaki.

Vessels must not stop or anchor in the harbor entrance.

3-127 Isthmia, built on both sides of the southeastern entrance to the Corinth Canal and the property of the canal company, has a population of about 750. The buildings of the company are on the southern side of the canal. A supply of water can be obtained here and at Kalamaki from water boats or by pipe for small vessels able to approach the shore. The town has postal, customs, and telegraphic facilities.

The village of Kalamaki, located on the northern shore of Kalamaki Bay, has a population of about 150. A small pier with shallow depths alongside projects southwestward from the village.

CHAPTER 4

GREECE—CYCLADES

4-1 CYCLADES (Kikladhes)—General Remarks.—The Cyclades, so named from their surrounding the island of Delos (Dhilos), the so-called island of the ancient Greeks, are located in the middle and western parts of the southern Aegean Sea. During ancient times there was no fixed number of islands constituting this group. Some writers included islands that are entirely foreign to the group, such as Khios, Samos, and some of the Dodecanese; others considered the islands of Andros, Tinos, and Jura as a part of the Sporades. At present the name Cyclades applies only to those islands that comprise the Department of Cyclades, one of the governmental divisions of Greece.

The total area of the islands is about 1,022 square miles, and the inhabitants numbered about 100,000 in 1961. Agriculture is the principal industry, and some fishing and manufacturing is carried on to serve local needs. Some of the islands have mineral deposits.

4-2 MILOS (MELOS) (*H. O. Chart 4134*), the southwestern island of the Cyclades, has a length of 11 miles in an east and west direction and a width of 7 miles. This mountainous island attains a height of 2,583 feet in Mt. Elias (Profitis Ilias), located in its southwestern part. Although the coast is clear in most places, there are some off-lying islets and rocks that make caution necessary on the part of those navigating near this island.

The island lacks vegetation for the most

part, but the level areas are carefully cultivated and produce grain and fruit. The soil, dark in most places, contains different minerals, which constitute the principal wealth of the island. The medicinal waters on the island are undeveloped. The population numbers about 4,950 inhabitants, most of whom live in the settlements near Milos Bay.

4-3 ANANES.—About 12 miles southwestward of the southwestern extremity of Milos is a group of small rocky islets, the highest of which, named Ananes, is 227 feet high. When bearing 012°, distant 7 miles, the group appears as seven islets. Vessels should not approach this group too closely.

A light is exhibited from an iron beacon, 20 feet high, on Ananes.

4-4 Paximadion (Paximadhi) (*36°38' N. 24°19' E., H. O. Chart 4134*), an islet, lies 1,600 yards south-southwestward of the southwestern extremity of Milos. As rocks above and below water extend as far as 800 yards from this islet, it should be given a berth of about 1 mile. Navigation is safe along the axis of the channel separating the islet from Milos. Foul ground is located about 200 yards off the northeastern extremity of the islet.

A light is exhibited from a white iron tower on a masonry base, the whole 10 feet high, on the summit of Paximadion.

4-5 Western side of Milos.—This uninhabited side of Milos is free of dangers and has deep water near it. About 2 miles north of Psalis Point, the southwestern extremity of Milos, is formed the bay of Agios Joannis

(Ayios Ioannis). Having rocks along its shores, this bay is open to the west and unsuitable for anchorage. About 2 miles northward of the bay is Akrotiri Point, which projects 800 yards westward from the coast and has rocks extending another 200 yards westward from it. Beyond Akrotiri Point the coast turns north-northeastward, and $1\frac{1}{2}$ miles from this point form Kalephati Point, and 1 mile farther northeastward is Cape Vani, the western entrance point of Milos Bay.

4-6 Antimilos (Andimilos), the island with its southern extremity about $5\frac{1}{2}$ miles west-northwestward of Cape Vani, extends 2 miles in a north-and-south direction, has a width of $1\frac{1}{2}$ miles in its northern half, and attains a height of 2,250 feet. Because of its rounded form and great height the island is visible from a great distance, even at night, and constitutes a good landmark for the island of Milos and its bay. Landing on this uninhabited, sterile, and precipitous island is difficult.

The channel separating Antimilos from Milos is deep and clear of dangers. Vessels should keep in midchannel, as either shore is subject to continuous calms or violent squalls from the high land. A southerly current has been observed along the western side of this channel.

A light is shown on the southwestern extremity of Antimilos.

Akrathi (Akradhia) Islets, two rocky islets located close together, lie 1,400 yards northwestward of Lakida Point, the eastern entrance point of Milos Bay, from which they are separated by a deep and clear channel.

A light is exhibited from a square tower with a dwelling, the whole 23 feet high, on the northwestern point of the western Akrathi Islet.

A depth of 14 fathoms is located 1,240 yards north-northwestward of Akrathi Islet Light.

4-7 Milos Bay (Ormos Milou) (*plan on H. O. Chart 4134*), which indents the western part of the northern side of Milos, constitutes one of the best and safest anchorages in the eastern part of the Mediterranean. Being exceptionally well located near the central part of the Aegean Sea, this bay has been used in the past for various naval activities. From its entrance about 3 miles wide between Cape Vani on the west and Lakida (Lakidha) Point on the east, the bay recedes about $5\frac{1}{2}$ miles in a general south-easterly direction and has a width of 1 to 2 miles. The depths are great throughout at a prudent distance off the shore, which is precipitous and high in most places.

About 2 miles within Cape Vani the western shore forms an easily visible promontory terminating in Kalamaria Point, and beyond this conspicuous point the shore trends southward for another 2 miles, and then turns eastward to form the southern shore of the bay. A conspicuous church stands on the southern side of this southwestern recess, and 900 yards eastward of this church and 200 yards offshore is a small rock surrounded by shallows.

4-8 Prohibited anchorages.—A prohibited anchorage area, the limits of which are indicated by dashed lines on the chart, is established off the eastern and northern sides of Cape Vani to a distance of about one-half of a mile offshore, between positions three-fourths of a mile south-southeastward and one-fourth of a mile southwestward, respectively, of the cape.

A prohibited anchorage area, the limits of which are indicated on the chart, extends about one-half of a mile offshore from the western side of Lakida Point, between the point and a position about three-fourths of a mile southward.

From Lakida Point the outer eastern shore trends 1 mile southward and then curves

westward to form Cape Phurkovuni (Fourkovouni), located opposite Cape Vani. About midway along this part of the shore and 400 yards offshore lies Monopodro Rock, 15 feet high. From the cape the shore trends $2\frac{1}{2}$ miles southeastward to Bombarda (Bombardha) Point, a light-colored bluff headland. Within this stretch of the shore is the town of Kastro (Milos) (Plaka), built on a rock elevation 1 mile southeastward of Cape Phurkovuni, and one-half of a mile farther southeastward is the village of Trypete (Tripiti).

4-9 Adamas (Adhamas), the port for the entire island and the main anchorage in the bay, is located about $\frac{1}{2}$ of a mile northeastward of Bombarda Point. About 400 yards east-northeastward of Bombarda Point stands a conspicuous, white, pyramidal monument, a memorial to those who fell in the Crimean War. The church in the village is a good landmark and has a conspicuous white clock tower close southward of it; a conspicuous tower which in 1964 was in bad repair stands about 800 yards east-northeastward, and another about 950 yards eastward of the church; a column visible from the bay, stands close southward of the church. A pier is located just southward of the village. There are two small jetties located in a position about 200 yards southeastward of the church in the village. In the low cliffs below the village are caves, some of which are used for boathouses.

A house stands on the eastern shore in a position $1\frac{1}{4}$ miles eastward of Bombarda Point. At this place projects a stone pier with depths of 10 to 12 feet at its outer end. Along the southeastern shore of the bay are some salt pans with a pier. About one-half of a mile southwestward of the salt pans stands Khoani, a reddish conical hill with a red scar on its western slope. This hill can be easily identified. A small wharf is located 300 yards northwestward of the hill.

A light is shown from Bombarda Point.

A dangerous wreck lies about 850 yards southeastward and another lies about $1\frac{1}{4}$ miles southeastward, respectively, of Bombarda Point Light. Also, a dangerous wreck lies about 1 mile and another about $1\frac{1}{2}$ miles, respectively, 187° from the light.

Foul ground exists about 600 yards eastward and about $1\frac{1}{8}$ miles east-southeastward, respectively of Bombarda Light.

4-10 Anchorage—Winds.—Vessels can anchor in any convenient berth southward of Adamas in depths of 10 to 25 fathoms, mud; the farther a vessel is offshore, the better is the holding ground. A fair berth for a large vessel is with Bombarda Point, Kalamaria Point, and the summit of the island of Antimilos in range, bearing 296° , and the village of Adamas bearing 338° . The depths decrease rapidly here, and if the anchor is in 20 fathoms and a good scope of chain is out, the vessel's stern will be in 12 fathoms when swung inshore by southerly winds.

Anchorage may be obtained in charted depths of 10 to 5 fathoms about 380 yards northwestward of the pier at the salt pans.

The southwestern recess of the bay affords anchorage in a depth of 11 fathoms, sand, about 400 yards offshore and 700 yards northwestward of the conspicuous church standing on a point projecting eastward from the shore.

During the winter the squalls off the southern shore of the bay are sometimes violent. During the summer the wind is normally from the north, is usually constant, and blows with greater force by day than by night, making boat work difficult at times. The bay, nevertheless, affords good shelter

from northerly and northeasterly winds to vessels of every class.

Pilotage is compulsory for Milos Bay.

4-11 ADAMAS (ADHAMAS) ($36^{\circ}45' N.$, $24^{\circ}27' E.$, plan on *H. O. Chart 4134*), a village of about 650 inhabitants located on the short northern shore of the inner part of Milos Bay, constitutes the port for the entire island of Milos, and from here are exported all the products of the island except the ores, which are loaded at places nearer to the mines. Provisions are available in small quantities. The village has postal, customs, and telegraphic facilities, and coastal steamers call. A road runs to the village of Trypete, with about 1,250 inhabitants, and the capital town of Kastro, with about 1,470 inhabitants, both located to the northwestward, and another road runs to the village of Paleokhori (Palaiochori), located to the southeastward.

Piers.—At the eastern end of Adamas is a masonry pier with a length of 115 feet and a depth of 13 feet at the head. A wooden pier at the western end of the village is available only for boats.

Repairs.—Minor repairs can be effected.

Supplies.—A limited amount of fresh provisions and vegetables are procurable. A small quantity of Diesel oil is available. There are six lighters of 12-ton capacity.

Hospital.—There is a 25-bed hospital in the bay area.

4-12 Northern side of Milos.—Cape Spilas is located three-fourths of a mile eastward of Lakida Point, the eastern entrance point of Milos Bay, and between them is a small bight encumbered by rocks. Between Cape Spilas and a point 4 miles eastward the northern side of Milos is indented by a large bay with rocks along its shores. Projecting from the shore $11\frac{1}{2}$ miles southeastward of Cape Spilas is **Bunda** (Pounda), a point with small rocky islets close northward and the small islet of **Kara** one-half of a mile northwestward of it. The Kunidi (Kounidhi) Rocks extend about 300 yards northward from the eastern entrance point of this bay, and about 1 mile westward of this same point and one-half of a mile offshore are the Kaloieri (Kaloyeroi) Rocks. As the depths are great near these rocks, vessels should not enter the bay at night.

The northeastern extremity of Milos (plan on *H. O. Chart 4134*), about one-half of a mile eastward the Kunidi Rocks, is a small promontory extending 700 yards in a north-northeasterly direction and called Pelekoudha. Rocky islets lie close off the western side of promontory, while the eastern side is indented by a small bay with depths of less than 3 fathoms. On the southern shore of this bay is the small settlement of Polonia.

A light is shown on the northeastern end of Pelekoudha.

Poloni (Polonia) Pass, having a minimum width of one-half of a mile and trending in a northwesterly and southeasterly direction, separates the northeastern extremity of the island of Milos from the southwestern extremity of the island of Kimolos. Forming the southern limit of the southwestern shore and lying close off Milos is Peloneni Islet (Pilonisi), and depths of less than 6 fathoms extend a short distance from this shore. A bank with depths of less than 6 fathoms extends one-half of a mile southward from the southwestern extremity of Kimolos, and on this bank near its extremity is a shoaler area with a least depth of 26 feet, called Polonia Reef. The fairway of this pass having depths of more than 6 fathoms is a little over 200 yards wide in the southern part. To use this fairway, large vessels should pass the northeastern extremity of Milos at a distance of 200 to 250 yards and then steer for Peloneni Islet, giving the northern and eastern sides of this islet a similar berth.

Poloni Pass and Pyrgui Strait (sec. 4-19) are also called Kimolos Straits.

4-13 Eastern side of Milos.—Voudia Bay (Ormos Voudhia) ($36^{\circ}43' N.$, $24^{\circ}32' E.$, *H. O. Chart 4134*), open to the east, indents the eastern coast of Milos close southward of Peloneni Islet, which is separated from a point, 266 feet high, by a narrow and shallow channel. The depths in the bay range from 10 to 5 fathoms, sand, and the shores are low and clear of danger. At the

northern end of the bay is the small village of Voudhia, dominated by a hill 328 feet high. This village has a small wharf with some off-lying mooring buoys for vessels loading ore.

A shoal with a depth of 4 feet is located about 280 yards south-southwestward of the southern extremity of Peloneni Islet. A depth of 4 feet also lies about 100 yards southeastward of the southern extremity of Peloneni Islet.

From the southern entrance point of Voudia Bay the eastern coast of Milos trends 4 miles southward to Steli Point. Although the depths near this coast are great, vessels should give it a berth of one-half of a mile at night, as a few of the rocks are some distance offshore. At Roma (Romma) Point, $2\frac{1}{4}$ miles southward of Voudia Bay, are some millstone quarries, connected by road with the inland village of Paleo Khorì.

4-14 Southern side of Milos—Dangers.—Steli (Stili) Point, the southeastern extremity of the island, is a narrow tongue extending 600 yards in a southerly direction. Close off this point lies a small rocky islet, and depths of 4 to 6 fathoms extend 300 yards farther in a southerly direction. A factory with a small pier near it is located about $1\frac{1}{2}$ miles north-northeastward of Steli Point.

A detached 2-fathom rocky patch lies about one-half of a mile 120° from Steli Point.

Ktenia Rocks, two rocks located close together in a position about $3\frac{1}{4}$ miles south-eastward of Steli Point, are above water and steep-to. When a vessel is in the vicinity of these rocks at night, caution is necessary.

About $1\frac{1}{2}$ miles west-southwestward of Steli Point is Theaphi (Thiafi) Point, and between them is formed Paleo Khorì (Palaio-khorì) Bay, which is connected by road with the inland village of the same name. Immediately westward of Theaphi Point is Gieraki (Yeraki) Bay, along the shore of which are sulphur beds.

Zephyros (Zefiros) Point, the western limit of Gieraki Bay, has depths of 4 to 5 fathoms extending 800 yards southward from it, and at the extremity of these depths lies Zephyr (Zefiros) Rock, a steep-to rocky patch with a depth of less than 6 feet. The

southeastern extremity of the island of Poly-aigos in range 054° with Steli Point leads well southward of this danger.

In order to avoid the 2-fathom patch off Steli Point, a vessel proceeding eastward should keep Psalis Point well open southward of Zephyros Point and bearing more than 264° until Peloneni Islet (sec. 4-12) is open eastward of Roma Point and bearing less than 358° .

Probato (Provato) Bay, entered between Zephyros Point and Akroteri (Akrotiri) Point, $1\frac{3}{4}$ miles westward, has its head divided into two parts by a small promontory. An Italian naval vessel reported taking shelter in this bay from strong northerly winds. She anchored in a depth of 15 fathoms, sand and shells; although she had $4\frac{1}{2}$ shots of chain out, the anchor dragged for 200 yards.

From Akroteri Point the southern coast of Milos trends $5\frac{1}{2}$ miles westward to Psalis Point, the southwestern extremity of the island. This stretch of the coast has deep water near it and is free from dangers. About midway along this coast and nearly $1\frac{1}{2}$ miles inland rises Mt. Elias.

4-15 KIMOLOS (*H. O. Chart 4134*), the island located one-half of a mile northeastward of that of Milos, from which it is separated by Poloni Pass, is almost circular in shape, the diameter being about 4 miles. This mountainous and barren island attains a maximum height of 1,305 feet in its northern part. The depths are great in most places near the coast, but vessels must guard, especially at night, against a few off-lying rocks and islets.

The population, about 2,000 inhabitants living in the town of Kimolos, is engaged mostly in navigation. Some minerals are exported.

4-16 Western and northwestern sides of Kimolos.—The southwestern extremity of the island of Kimolos has on it the conspicuous chapel of St. Demetrios (Ayios Dhimitrios). This extremity, sometimes called Poloni Point and separated from the island of Milos by Poloni Pass, has rocks and shallows extending 200 yards from it, and be-

yond them is a bank with depths of less than 6 fathoms.

From the southwestern extremity of the island the western coast trends 1 mile northward to a distinctive point, named Kambana, immediately northward of which is formed a bay open to the westward and having a sandy shore. In the southern half of the entrance to this bay lies St. Andreas (Ayios Andreas) Islet. Shallow depths extend to the shore of the bay from this islet, and similar depths occupy the whole interior of the bay. Within the northeastern shore is a well-cultivated area. This bay was the site of an ancient town.

From the northern limit of the above-mentioned bay the western coast trends $1\frac{1}{2}$ miles northward to Petalidha Point, within which rises a 955-foot hill; then the coast trends $2\frac{1}{2}$ miles northeastward to Cape Monasteri (Monastiri), the northern extremity of the island, close off which lie rocks and a small rocky islet. About three-fourths of a mile northeastward of Petalidha Point and one-third of a mile offshore lie Thermo Vrakhi, a patch of rocks surrounded by deep water.

4-17 Northeastern, eastern, and southern sides of Kimolos.—The northern part of the northeastern coast of Kimolos is indented by Vromo Bay. Kedras (Kendhras) Point, the eastern entrance point of this bay, is located 1 mile northwestward of Anatoli Point, the eastern extremity of the island.

The eastern side of Kimolos is of some interest to navigators. About one-half of a mile southwestward of Anatoli Point and separated from the coast by a narrow and shallow channel is Praso Islet, and about 200 yards farther southwestward and near the coast is a smaller islet with rocks in its vicinity.

About $1\frac{1}{2}$ miles south-southwestward of Anatoli Point is Semina Cove, which recedes

in a northerly direction and has depths sufficient only for small craft that can take shelter here from northerly and westerly winds.

A light is exhibited from an iron column and hut, the whole 19 feet high, on the eastern entrance point of Semina Cove.

Klima Islet (*H. O. Chart 4134*), with shallows and rocks as far as 100 yards from it, lies one-half of a mile southward of Semina Cove and 300 yards off the coast, from which it is separated by a shallow channel. Between Klima Islet and a conspicuous promontory one-half of a mile southwestward the coast has some conspicuous quarries. Connected by shallow depths to the southern side of this promontory are the three islets of Revmatonesia. Between these three islets and the coast to the westward are depths of 5 fathoms, where small vessels can obtain shelter from westerly and northerly winds. About 800 yards southwestward of these same islets is a small shallow cove, open to the southeastward, along the shore of which is built the small settlement of Psatha, the landing place for the inland town of Kimolos. About 300 yards eastward of the northern entrance point of this cove is anchorage for large vessels in depths of 11 to 8 fathoms, sand. From the cove the eastern coast trends, 1,200 yards southwestward to the southern side of the island.

The southern coast of Kimolos, over $1\frac{1}{2}$ miles in length, is fringed by a rocky bank with depths of less than 3 fathoms. On the eastern half of this bank, where it extends as far as 500 yards offshore, lies Pergonesi (Pirgonisi), a small rocky islet about 200 yards offshore. A patch of rocks with a depth of less than 6 feet lies about 500 yards eastward of this islet. Anchorage, sheltered from northerly winds, can be obtained in a depth of $6\frac{1}{2}$ fathoms about 700 yards west-

southwestward of Pergonesi and 400 yards offshore.

4-18 Kimolos, located 600 yards northwestward of its landing place, named Psatha, is a town of about 2,000 inhabitants. Provisions are available in limited quantities. The town has postal, customs, and telegraphic facilities, and coastal steamers call.

4-19 Pyrgui (Piriyi) Strait, having a minimum width of 1 mile, separates the southern half of the eastern coast of Kimolos from the northwestern coast of Polyaigos. The main fairway between St. Evstathios Islet on the west and Polyaigos on the east is deep and clear of dangers, and its navigation by night is simple. Vessels bound for Poloni Pass can pass between St. Evstathios Islet and Kimolos, favoring the former, after which they should give the southern coast of Kimolos a berth of one-half of a mile, but this route is not recommended at night.

St. Evstathios (Pyrgui) (Piriyi) Islet ($36^{\circ}46'$ N., $24^{\circ}35'$ E., *H. O. Chart 4134*), located in the southern entrance to Pyrgui Strait, is separated from the eastern coast of the island of Kimolos by a channel with a width of 600 yards and depths of 6 fathoms in midchannel. Shallow depths extend a short distance from the islet, and the much smaller islet of Peta (Pita) lies close southwestward of the western extremity, from which it is separated by depths of less than 3 fathoms. The eastern side of St. Evstathios Islet is indented by a small shallow cove, and on the western part of this same islet stands a small church.

A light, located on the northern end of St. Evstathios Islet, is exhibited from a square masonry tower on a dwelling, the whole 23 feet high.

St. Georgios (Ayios Yeoryios) Islet, located 1,400 yards southward of St. Evstathios Islet, is located not only in the southern approach to Pyrgui Strait but also in the eastern approach to Poloni Pass. Extending

800 yards in a north and south direction, this narrow and irregular shaped islet has a church on its southern part. Along the shores of this islet are rocks and much smaller islets, of which the three Kasseles Islets lie as far as 300 yards southwestward of the southwestern part of the islet.

About 600 yards westward of the northern end of St. Georgios Islet is the northern end of a detached shoal having depths of 6 fathoms or less and lying parallel to the western side of the islet. A rock above water lies on the northern part of this shoal, and on this same shoal about 300 yards southwestward of the rock is a $1\frac{1}{4}$ -fathom patch.

Polyaigos (Poliaigos) (*H. O. Chart 4134*), also called Polino, is the island located southeastward of that of Kimolos, from which it is separated by Pyrgui Strait. Being smaller than Kimolos and Milos, this mountainous and barren island rises to a height of 1,170 feet. The coast, bold and rather irregular, is indented by several small coves, and rocks and islets lies close offshore in places.

The few inhabitants on Polyaigos are engaged in raising cattle.

A light is exhibited from a cylindrical tower on a dwelling, the whole 28 feet high, near Maskula (Maskoula) Point, the northeastern extremity of Polyaigos.

4-20 SIPHNOS (SIFNOS) (SIPHANO) (*H.O. Chart 4133*) is located $6\frac{1}{2}$ miles northeastward of the island of Kimolos, from which it is separated by a deep and clear passage with the exception of a 5-fathom patch close southward of Siphnos. This large and mountainous island extends 9 miles in a general north and south direction, has a maximum width of $4\frac{1}{2}$ miles in its southern part, and attains near its middle part a height of 2,280 feet in Mt. St. Elias (Ayios Ilias). The depths are great along the precipitous coast indented by several bays, af-

fording anchorage for the most part to small vessels, and only off the northern and southern ends are there any dangers.

The western part of the island is sterile and uninhabited, but on a plateau, 890 feet high, on the eastern side is a group of villages, presenting a most imposing appearance from seaward. In these villages is found almost the entire population of the island, and Apollonia, the northernmost one, is the capital. The land around them is cultivated, producing principally olives and small quantities of grain, fruit, and cotton. The island also has some mineral deposits.

4-21. Western side of Siphnos.—Cape Kondos, the southern extremity of the island, is precipitous and clear of dangers. Immediately northward of this cape is Port Kondos, a small harbor receding 800 yards eastward and decreasing in width from its entrance having a width of 400 yards. Having precipitous and clear shores, this harbor has considerable depths, but the 3-fathom curve is about 200 yards off the head, where small craft can anchor in a depth of $3\frac{3}{4}$ fathoms, sand and weeds. Within the 3-fathom curve along the southern shore of the head is a small islet.

Port Vathy (Ormos Vathi), the small bay located $1\frac{1}{2}$ miles north-northwestward of Port Kondos, widens out inside of its entrance, where it is only 300 yards wide. Beyond the 5-fathom curve, as far as 150 yards off the northern shore, the depths increase rapidly; consequently anchorage is of doubtful safety. Small craft can anchor in a depth of $4\frac{1}{4}$ to $3\frac{3}{4}$ fathoms, sand, about 150 yards southward of the church in the small settlement of Taxrarkhis, located on the northern side of the bay. This bay has a number of wells. A light is shown from Akra Maistra (Maistros), the southern entrance point of Port Vathy.

Kamare Bay is entered 4 miles north-northwestward of Port Vathy, the interven-

ing coast being indented by two bays of no importance. This bay is about one-half of a mile wide in the entrance and recedes 1 mile eastward to the sandy beach at its head, where the 3-fathom curve is 250 yards offshore. From this curve the depths increase rapidly, the 10-fathom curve being about 750 yards off the head. Small craft anchor in a depth of 5 fathoms in a position 500 yards off the head and 200 yards off the precipitous southern shore. Northward of the bay rises Mt. Symeonos (Ayios Simeon), 1,625 feet high.

On both the northern and southern sides of the head of Kamare Bay is located a settlement, Ayios Yeoryios, the southern one, being the principal landing place for coastal steamers serving the island. Ayios Yeoryios has a pier for boats, and farther westward is another short pier connected by a railroad track to some mines in the interior. Close to the southern shore between these two piers is a mooring buoy.

4-22 A light is shown from an iron column on a dwelling, the whole 16 feet high, on the southern shore about 200 yards westward of the western pier.

From Kokkala Point, the northern entrance point of Kamare Bay, the western coast of the island trends 2 miles north-westward to Vronda Point, the southern entrance point of Georgio Bay. This stretch of the coast is indented by two small and narrow bays, the southern one having considerable depths in its inner part and the northern one being called Vourlidhia Bay.

Georgio (Ayios Yeoryios) Bay, entered between Vronda Point on the south and Cape Phillippo on the north, recedes eastward and has considerable depths, which make it unsuitable for anchorage. It is reported that small vessels with local knowledge can anchor in a depth of 12 fathoms with their sterns secured to the rocks at the foot of the small settlement located here, and that the

depth is 5 fathoms at a distance of 30 feet from these rocks. A submarine cable is landed in this bay.

Cape Phillippo (Filippos), the northern extremity of the island of Siphnos, is the termination of a small promontory, 327 feet high, connected to the island by a narrow neck. This promontory forms the northern shore of Georgio Bay. Immediately off the cape is a small rocky islet, and 800 yards farther north-northwestward is a small rock, 3 feet high, dangerous for vessels rounding the cape at night.

A light is shown from Cape Phillippo.

4-23 Northeastern side of Siphnos.—From Cape Phillippo the northeastern coast of the island trends 9 miles in a general southeasterly direction to Napos Point, the eastern extremity of the island. The deep water along this coast is free of dangers. Misertoulis Point, about 3 miles east-southeastward of Cape Phillippo, is a distinctive point for vessels passing along this coast, and 1 mile farther southeastward is Ayioi Sozondos Point, southward of which are iron mines.

Kastro Bay, located on the northeastern side of Siphnos in a position about $1\frac{1}{2}$ miles north-northwestward of Napos Point, is about 400 yards wide between Kastro (Eftamartiros) Point on the north and Miti Point on the south. The southern half of the bay recedes farther westward than the northern half, and about 50 yards southward of the northern entrance point of this southern half lies a $2\frac{1}{4}$ -fathom patch. A mooring buoy is located close eastward of this same entrance point. Being open to the east and northeast, Kastro Bay is used for anchorage only during the summer. Small craft can anchor 120 yards northward of Miti Point in a depth of 8 fathoms, sand, but seaward of this berth the depths increase rapidly. On the shore of this bay is the small village of Kastro, and over 1 mile inland from it is the previously mentioned group of villages. A submarine cable is landed just southward of Kastro Point.

4-24 Southeastern side of Siphnos.—Port Pharos (Ormos Faros), which indents the southeastern side of Siphnos in a northerly direction for a distance of 800 yards, is entered 1 mile southwestward of Napos Point. Cape Stavros, the southern extremity of the small peninsula, is on the eastern side of the entrance to Port Pharos. A light is shown from Cape Stavros but is not visible until bearing less than 256° . Having a width of 500 yards in its entrance, this small bay first widens out to 800 yards and then contracts to 200 yards for the last 350 yards of its length. The depths range from 27 to 5 fathoms, the 3-fathom curve being 100 yards off the sandy head of the bay, where is located the small settlement of Faros, the second landing place for the inland group of villages. Sunken rocks lie close off both the entrance points, and close northward of the western entrance point lies a low islet. Small craft can anchor in front of the settlement at a distance of 200 yards offshore; this berth, sheltered from northerly winds, has a sandy bottom.

Platialis Bay (Ormos Platiyalos), the largest of the bays on the southeastern side of Siphnos, is located 2 miles southwestward of Napos Point. Open to the southeast and bordered by hills over 330 feet high, the bay recedes 1,100 yards and has a similar width. The depths decrease from 22 fathoms within the entrance to the 3-fathom curve located 200 yards off the low sandy beach at the head, where the small settlement of Lazarou is built in front of an olive grove. A detached $3\frac{3}{4}$ -fathom patch lies 100 yards southward of Amoni Point, the northeastern entrance point, but elsewhere the shores are clear of dangers. The best place for anchoring is 300 yards off the sandy head in a depth of $6\frac{1}{2}$ fathoms, sand and weeds. Vessels in this bay during strong northerly winds will be troubled by squalls from the high land.

The southeastern coast of Siphnos from 900 to 1,700 yards southwestward of Sarli Point, the southwestern entrance point of Platialos Bay, is indented by a bight. Being in the lee of the islet of Kitriani during southerly winds, this bight could afford anchorage, but the holding ground is not firm.

Tourkav ako is the name of the small bay located immediately eastward of Cape Kondos, the southern extremity of Siphnos. It is not suitable for anchorage.

4-25 Kitriani, an islet 338 feet high, lies about 1 mile southward of the entrance to Platialos Bay, and is separated from the southeastern coast of Siphnos by a channel having a width of 400 yards and deep water in midchannel. Shallow depths extend 60 yards offshore in places, and a much smaller islet, 43 feet high, is connected to the western side of the islet by a low and narrow neck of land with depths of less than 3 fathoms near it. A small church stands on the northern part of Kitriani.

Shoals.—Two rocky heads, each with a depth of 5 fathoms, lie 1,100 yards southeastward of Karavi Point, the southwestern extremity of Kitriani, and another rocky patch of $5\frac{1}{2}$ fathoms lies 400 yards south-southwestward of Skaloura Point, the southeastern extremity of the islet. A rock awash lies close off a point located about 400 yards southward of Cape Tripiti, the northeast extremity of the islet. Large vessels should give Kitriani a berth of 1 mile because of these shoals.

4-26 Siphnos (Siphano) (Sifnos) Channel ($37^{\circ}05' N.$, $24^{\circ}35' E.$, *H. O. Chart 3923*), about $6\frac{1}{2}$ miles wide between Cape Phillippo, the northern extremity of Siphnos, and Point Spathi, the southeastern extremity of Seriphos, is deep and clear of dangers except for the rock, 3 feet high, lying 800 yards north-northwestward of Cape Phillippo.

This channel is used by vessels bound from Cape Malea to Izmir Körfezi.

4-27 SERIPHOS (SERPHO) (SERIFOS) (*H.O. Chart 4133*), an almost circular island with a diameter of 5 miles, is located $6\frac{1}{2}$ miles northwestward of the island of Siphnos, from which it is separated by Siphnos Channel. This mountainous and sterile island attains near its center a height of 1,919 feet in a peak called Troullos. The coast has deep water near it and is clear of dangers except for two sunken rocks and two off-lying islets.

The principal industry is the mining of iron ore. A large number of the inhabitants live in the inland town of Seriphos (Serifos), the remainder being scattered in the interior and along the coast.

Pilotage at the island of Seriphos is compulsory for the different anchorages and ore-loading places.

Cyclops Head (Cape Kiklops), the southwestern extremity of the island, is so named from the ruins of huge walls on it. The cape is precipitous and clear of dangers.

A light is shown from Cyclops Head.

4-28 Coast.—Between Cyclops Head and Kutala Bay, about $1\frac{3}{4}$ miles eastward, the southern side of Seriphos is indented by two small bays, Dhio Yialoudhia and Maliadhika. Both are open to the south and clear of dangers, but the depths are too great for anchoring small vessels that are able to approach the recess of either bay.

4-29 Kutala Bay (Ormos Koutala), about 800 yards wide in its entrance between Steli Point (Aspros Kavos) on the west and Khalara Point on the east, recedes about 1,400 yards in a north-northeasterly direction. The depths in this bay, as well as along its precipitous shores, are great, but in the northeastern part the 3-fathom curve is 100 yards offshore.

A column or beacon stands on Steli Point. Farther northward the western shore takes a pronounced turn to the eastward for a distance of 400 yards, and then again assumes a northerly trend to the head of the bay, where is located the village of Koutala. Along this shore are tracks coming down from some mines in a hill rising to a height of 479 feet. As the depths are great along this shore, there are establishments for loading ore, and not far southward of the village is a loading pier, having 200 yards northeastward of it two mooring buoys.

Vayia Bay, the southeastern part of Kutala Bay, has the small settlement of Khalara on its shore. Establishments for loading ore are maintained on the southern shore, and as the depths are great, a mooring buoy is anchored here. Vayia Bay is the only part of Kutala Bay not attacked by southerly winds.

4-30 Coast.—The southern coast of Seriphos immediately eastward of Kutala Bay is indented by the wide bay of Ambeli, open to the southwest and having the small Mikro Islet close off its southeastern entrance point. This bay has great depths in its inner part, and the uninhabited shores present no dangers. In the middle of the entrance lies a dangerous steep-to rock with a depth of less than 6 feet; it is difficult to see on account of the color of the bottom. To avoid this rock, vessels passing along the southern side of Seriphos must keep well outside of a line between the southeastern limit of Kutala Bay and Mikro Islet.

Between Ambeli Bay and Point Spathi, the southeastern extremity of the island of Seriphos, the coast is indented by 2 small bays, both open to the south and unsuitable for anchorage.

A light is exhibited from a square tower with a dwelling, the whole 32 feet high, on Point Spathi.

4-31 Livadhi Bay, entered about $1\frac{1}{2}$ miles northeastward of Point Spathi, recedes northward for a distance of almost 1 mile and has an average width of 800 yards. The depths in the bay, as well as along the precipitous eastern shore, are great; the 3-fathom curve is about 100 yards off the rather low western and northern shores.

The western shore has two projecting points. The southern point has on it a hill. A rock, nearly awash, lies 400 yards southward of this point, and 150 yards offshore. The northern point, named Poundi, has on its extremity a lighthouse, and 150 yards southwestward of the lighthouse stands a church. Westward of Poundi is the small village of Livadhi, located on the southwestern shore of the head of the bay.

A small pier is located 270 yards west-northwestward of Poundi Point. A conical buoy is moored about 200 yards northeastward of the pierhead.

Between Amyno (Amino) Point, the outer eastern entrance point, and Nerou Point, the inner one, the eastern side of Livadhi Bay is indented by a small bay open to the southwest. Northward of Nerou Point, hills back the eastern shore.

A light is exhibited from an iron column with a hut, the whole 19 feet high, on Poundi Point.

A light is shown on the head of the small pier.

4-32 Anchorage is available at the head of Livadhi Bay in depths of 12 to 8 fathoms, sand and weeds. Small craft can anchor close to the village, where they are protected from all winds. During the summer calms prevail, and the heat is excessive, even at night, because the bay is surrounded by an amphitheatre of rocky hills that hardly cool.

4-33 Livadhi, a village of about 60 inhabitants, is the landing place for the inland town of Seriphos, with which it is connected by a road. The village has a small pier for boats. Postal, telegraphic, and customs facilities are available. Livadhi is a port of call for coastal steamers.

4-34 Vus (Vous) Islet, 430 feet high, lies $1\frac{1}{2}$ miles northeastward of the eastern entrance point of Livadhi Bay and 1 mile off Stili Point, the easternmost extremity of the island, from which it is separated by a deep and clear channel. This bold and steep-to islet has a few rocks close off its western side. Being high, the islet stands out at night.

Prohibited anchorage.—Anchorage is prohibited within the 30-fathom curve surrounding Vus Islet.

4-35 Coast.—Immediately northward of Stili Point is Ayios Sostis Bay, open to the eastward, beyond which the eastern coast of the island trends northward and forms Psili Ammos Bay and Kendarkhos Bay, respectively, $1\frac{1}{3}$ and $2\frac{1}{2}$ miles northward of Stili Point. The last mentioned bay, open to the eastward, is suitable for anchorage only during the summer, when it is used as a landing place for the inland village of Panagia (Panayia), located $1\frac{1}{2}$ miles northwestward of Psili Ammos Bay. The village of Kendavros is located one-half of a mile westward of Kendarkhos Bay.

Prohibited anchorage.—A prohibited anchorage area, the limits of which are indicated by dashed lines on the chart, extends almost one-half of a mile offshore between Stili Point and a point about $1\frac{1}{2}$ miles north-northwestward.

A sunken rock lies close eastward of Panagia (Panayia) Point, the northern entrance point of Kendarkhos Bay. From Panagia Point the coast commences to curve westward, and $1\frac{1}{4}$ miles northwestward of this point is Dhistomo Bay, open to the northeast and having a sunken rock close eastward of Angruphi (Angoufi) Point, its northwestern entrance point.

Volos Point, the northern extremity of the island of Seriphos, is located 1 mile west-northwestward of Dhistomo Bay. East and west of this point are formed, respectively, the small bays of Parasparia and Skala, the latter being the landing place for the village of Galani, located inland a short distance. West of Skala Bay the coast forms Sikaminia Point, having precipitous shores and rising to a height of 400 feet. Dangerous rocky shallows of less than 6 feet extend 500 yards northwestward from Sikaminia Point.

Between Sikaminia Point and Phurno (Fournoi) Point, 1,200 yards west-southwestward, is Psarometokhion Bay, open to the northwest. Between Phurno Point and Avesalos Bay, $2\frac{1}{4}$ miles southwestward, the coast is indented by several small bays, open to the northwest and unsuitable for anchorage during the winter. Avesalos Bay, open to the westward, has in its inner part great depths free of dangers and lesser depths along the sandy shore at its head, where is located the small settlement of Avesalos, the landing place for some marble quarries southward of the bay.

4-36 Mega Livadhi Bay, which indents the southern part of the western coast of Seriphos, has deep water in its inner part and is clear of dangers. The head of the bay is divided by a promontory into two parts, and on the shore of the southern part is the village of Mega Livadhi, which has a hospital. A conspicuous white church stands on a hill behind the village. The area near this bay is covered with mines, and the greatest part of the ore exported from Seriphos is shipped from here. For this purpose the bay has several piers with mooring buoys for the swift loading of vessels.

4-37 Seriphos (Serifos) Channel ($37^{\circ}15' N.$, $24^{\circ}27' E.$, *H. O. Chart* 4138) is 7 miles wide between the island of Seriphos on the south and the island of Kythnos on the

north. This channel is clear of dangers, but the islets of Piperi and Seriphopulon are located in its eastern approach. The strait is frequented only by local vessels, and a vessel navigating this unlighted strait at night should keep to the Seriphos or Kythnos side.

4-38 Piperi ($37^{\circ}18' N.$, $24^{\circ}32' E.$, *H.O. Chart 4133*), an uninhabited, small, rocky islet, lies 7 miles eastward of the southern extremity of the island of Kythnos. The islet is surrounded by great depths except for some rocks on its southern side, and landing is difficult on the precipitous shores. The currents are strong in the vicinity of Piperi.

Seriphopulon (*Serfopoula*), an islet, 650 feet high, with steep cliffs on its southern side, is located $4\frac{1}{2}$ miles northeastward of the northeastern part of the island of Seriphos and 4 miles southeastward of the islet of Piperi. A small rock lies close off its eastern extremity, but elsewhere the islet is clear of dangers. The islet is used for grazing.

A current has been observed between Seriphopulon and Seriphos; it sets usually southward.

4-39 Prohibited anchorage.—A prohibited anchorage area exists in the vicinity of the northern extremity of Seriphopulon Islet, as shown on the chart.

4-40 KYTHNOS (KITHNOS) (THERMIA) (*H.O. Chart 4133*), the second island from the north of the western Cyclades, lies 7 miles north-northwestward of the island of Seriphos, from which it is separated by Seriphos Channel. The island is $11\frac{1}{2}$ miles in length in a general north and south direction and has a maximum width of 6 miles just north of its middle part. The island is covered with hills, the highest near the middle of the island rising to 965 feet. The

shores with deep water near them are clear of off-lying dangers and form several bays, some affording good and safe anchorage, and numerous coves.

The inhabitants number about 2,800, most of whom live inland in two towns, the capital town of Kythnos (*Kithnos*), located 4 miles southward of the northern extremity of the island, and Sillacca (*Dhriopis*), located $1\frac{1}{2}$ miles southward of that of Kythnos and close northward of the summit of the island. Although the island lacks vegetation, barley, figs, grapes, and almonds are raised in small quantities. The cattle industry is somewhat developed. Thermal baths are located in the northeastern part of the island. The climate is healthy, but during the summer the island is subject to Etesian winds.

Cape Kephalos (*Kefalos*), the northern extremity of the island, is low and steep-to, but a short distance within the cape a hill rises to a height of 662 feet. The low part of the cape is difficult to make out at night.

A light is exhibited from an iron beacon, 20 feet high, on Cape Kephalos.

4-41 Coast.—From Cape Kephalos the northwestern coast trends 5 miles southwestward to Cape Colonna (*Kolona*). Having great depths and a few sunken rocks near it, this precipitous coast is backed by hills and indented by a few coves, unsuitable for anchorage. At Cape Colonna the coast turns eastward and is fronted by the islet of Ayios Loukas, extending 1,400 yards in an east and west direction and connected to the mainland to the north by a low, narrow, sandy neck.

Kolona Bay, about 500 yards wide in its entrance between Cape Colonna and the western extremity of the islet of Ayios Loukas, recedes two-thirds of a mile eastward to the above-mentioned sandy neck and has depths of 11 to 5 fathoms in its inner part.

Immediately east of the sandy neck is the small bay of Fikiadha, well sheltered and open to the southeast. Depths of less than 3 fathoms extend 200 yards from the sandy northeastern shore of Fikiadha Bay, and a sunken rock lies within the 3-fathom curve off the eastern entrance point. The southwestern half of Fikiadha Bay has depths of 11 to 5 fathoms.

Port Apokrousis, the bay entered 800 yards eastward of the eastern end of the islet of Ayios Loukas, recedes 800 yards eastward from its entrance having a width of 400 yards. The northern and southern shores are rather precipitous, but the head has a sandy beach, where the 3-fathom curve is about 200 yards offshore. On the southern side of the entrance a sunken rock lies within the 3-fathom curve, which here is as far as 100 yards offshore. This bay affords safe anchorage to small vessels in depths of 18 to 5 fathoms, sand and weeds.

About 800 yards southward of the entrance to Port Apokrousis and close off the coast, from which it is separated by a narrow and foul channel, is the rocky islet of Vriokastraki. The depths are great near its outer precipitous coast, and the mainland northeastward of the islet is indented by the small and shallow bay of Mandraki, where are located the ruins of the ancient town of Kythnos.

Port Piskopi (Episkopi), entered southward of the above-mentioned islet of Vriokastraki and separated from Port Apokrousis to the northward by heights up to 453 feet, recedes 800 yards eastward and has depths of 16 to 5 fathoms. The northern and southern shores are precipitous, but the head has a sandy beach with the 3-fathom curve 150 yards offshore. At the head of the bay is a small settlement with wells.

4-42 Port Merika (Ormos Merikha), located southward of Port Piskopi, from which

it is separated by a promontory, 199 feet high, trends one-half of a mile in a southeasterly direction and has an average width of one-fourth of a mile. Both the southwestern and northeastern shores are precipitous, the latter being indented by 3 small coves, and the head of the bay, where is located the village of Merikha, is a sandy beach with the 3-fathom curve 150 yards offshore. The depths elsewhere range from 22 to 5 fathoms, mud and weeds, good holding ground. Sometimes bad weather during the winter prevents anchorage in this bay.

Kolias Point, the southern entrance point of Port Merika, has a shallow spit extending 300 yards northwestward from it, and on the extremity of this spit is a small low rock. A foul area lies about 275 yards east-northeastward of Kolias Point.

A light is exhibited from a square masonry tower with a dwelling, the whole 18 feet high, on the northern entrance point of Point Merika.

4-43 Merikha, the small settlement at Port Merika, is the landing place for the inland towns of Kythnos and Sillacca, with which it is connected by road. The settlement has postal, customs, and telegraphic facilities, and coastal steamers make it a port of call.

A pier, 130 feet long with depths of 13 feet at its head, is available.

4-44 Coast.—From Port Merika the western coast of Kythnos trends $5\frac{1}{2}$ miles south-southwestward to Cape Dimitri (Ayios Dhimitrios), the southern extremity of the island. Having great depths and a few rocks and small islets near it, this coast is indented by a number of small bays, open to the west and unsuitable for anchorage. The two larger bays are Flambouri and Port Dimitri (Ayios Dhimitrios), located respectively 1 mile south of Port Merika and 1 mile north of Cape Dimitri.

A light is shown from an iron framework tower, 16 feet high, on Cape Dimitri.

The southeastern coast of Kythnos trends $6\frac{1}{2}$ miles in a northeasterly direction from

Cape Dimitri to Port St. Stephanos. Having deep water near it, this uninhabited coast forms numerous small bays, open to the southeast and unsuitable for anchorage. The bays of Kanala, Ayios Nikolaos, and Levkes, respectively, 4, $4\frac{2}{3}$, and $5\frac{1}{2}$ miles from Cape Dimitri are connected by highway with the town of Sillacca and are used as its landing places, especially during the summer. A rock with a depth of less than 6 feet lies in the northern part of the entrance to Kanala.

4-45 Port St. Stephanos (Ayios Stefanos), the bay located 1 mile southwestward of Cape St. John (Ayios Ioannis), the eastern extremity of Kythnos, is the secondary port for the town of Sillacca, but does not afford safe anchorage, being attacked by southerly winds. The head of the bay is divided by a promontory into two inlets. Extending 200 yards southeastward from the southeastern extremity of this promontory is a reef with depths of less than 3 feet, and a detached rocky patch with a depth of less than 6 feet lies about 400 yards eastward of the southern entrance point to the bay and can be easily seen. The deep water in this bay is unsuitable for anchorage, but small vessels can anchor near the heads of the two northern inlets, where the depths become less than 10 fathoms. The outer part of the western shore is indented by two coves with depths of less than 10 fathoms, and in the entrance of the southern one lies a small rocky islet connected by shallows to the mainland to the northwestward.

4-46 Coast.—The northeastern coast of Kythnos is between Cape St. John, the eastern extremity of the island, and Cape Kephalos, the northern extremity, the latter being $5\frac{1}{2}$ miles north-northwestward of the former. Near this coast are great depths and many rocks; the greatest danger from these rocks are the two with depths of less than 6 feet lying close together in a position

about 1,600 yards northward of the light structure at Port Irene and 300 yards offshore. The middle part of this coast is indented by two bays, Port Irene and Livadhaki Bay; the latter, $2\frac{1}{2}$ miles northwestward of Cape St. John, is open to the northeast and uninhabited.

4-47 Port Irene (Ormos Loutron), entered $2\frac{1}{2}$ miles southward of Cape Kephalos, is 400 yards wide in the entrance and recedes 700 yards in a westerly direction. This small bay has depths of 22 to 5 fathoms, and only in front of the sandy beach at the head of the bay is the 3-fathom curve as far as 100 yards offshore. In the approach to the bay in a position 350 yards northward of the northern entrance point and 200 yards offshore lies a small rocky patch with a depth of 3 feet; it can be easily seen and avoided.

Port Irene is the principal landing place for the island of Kythnos and is connected with the inland town of Kythnos by road. A small settlement with bath establishments is located at the head of the bay, and coastal steamers call.

A light is exhibited from an iron column, 19 feet high, on the southern entrance point of Port Irene.

4-48 Anchorage.—Arriving at the middle of Port Irene, large vessels can anchor in a depth of 19 to 13 fathoms. Sheltered from easterly and northeasterly winds, small vessels anchor in depths of 8 to 4 fathoms in the small arm indenting the southern shore in a southeasterly direction. The head of this arm is shallow and here stands a church. Two mooring buoys are located near the head of the port.

To enter Port Irene presents no difficulties. Vessels intending to anchor either in the bay proper or in its southeastern arm can pass the southern entrance point at a distance of 100 yards.

4-49 Thermia (Kythnos) (Kithnos) Channel ($37^{\circ}29' N.$, $24^{\circ}20' E.$, *H. O. Chart 4120*), between the northwestern coast of the island of Kythnos on the south and the southeastern coast of the island of Zea on the north, is over 6 miles wide, has great depths, and is clear of dangers. During the summer the channel is subject to Etesian winds.

Current.—The current in Thermia Channel sets southwestward with much strength, and is stronger than that in Zea Channel. Close along the southeastern coast of the island of Zea the current sets northeastward.

4-50 ZEA (KEOS) (KEA) (*H. O. Chart 4120*), the northwesternmost island of the Cyclades, lies 11 miles eastward of the mainland of Greece and over 6 miles northward of the island of Kythnos, from which it is separated by Thermia Channel. This island extends $10\frac{1}{2}$ miles in a north-northeasterly and south-southwesterly direction and has a maximum width of $5\frac{1}{2}$ miles in its northern part. Hills with deep ravines between them cover the surface of the island, and Mt. Elias (Ayios Ilias), near the middle of the island, attains a height of about 1,840 feet. The island is surrounded by great depths, no dangers existing more than 500 yards offshore. During northerly winds vessels should not approach the northern coast too closely, as a current sets toward this coast.

The island of Zea has only a few streams, and its watering is accomplished from wells and an occasional spring. The products are small quantities of grain, grapes, lemons, and acorns from valonia oaks.

Cape Tamelos ($37^{\circ}31' N.$, $24^{\circ}17' E.$, *H. O. Chart 4120*), the southern extremity of Zea, has great depths near it and presents no dangers.

A light is exhibited from a circular masonry tower with a dwelling, the whole 25 feet high, on Cape Tamelos.

4-51 Western side of Zea.—This side of the island, except for Port Ayios Nikolaos near its northern end, presents nothing of interest to navigation. Having great depths without dangers near it, this precipitous coast trends northward from Cape Tamelos and forms small bays, open to the south or southwest, which can be used only by small craft finding difficulty to proceed against northerly winds.

Close north-northwestward of Cape Tamelos is the cove of Platis Yialos, open to the southwest; Mavrovouni Point, its northern limit, is one-half of a mile north-northwestward of the cape. Between Platis Yialos and Port Kavia, 3 miles northward, the coast from south to north is indented by the coves of Tragomandhra, Avithos, Liparos, and Kambi, of which the last named has a small rocky islet at its northern limit.

Port Kavia, open to the southwest, affords refuge during northeasterly winds, but the depths are considerable. Ekkolino Point (Makriopounda), the western limit of this bay, should be given a wide berth, as a 2-fathom rocky patch lies 400 yards southward of it. It is also stated that a rock breaks on the southern part of this danger.

Port Pisa, a small inlet 1 mile northward of Ekkolino Point, affords shelter to small coasters during offshore winds. On the northern side of Port Pisa is a small settlement. Between Port Pisa and Sklavos Point, $3\frac{3}{4}$ miles north-northeastward, the coast is indented by several small inlets, all of which have great depths clear of dangers. At Sklavos Point the coast turns eastward toward Port Ayios Nikolaos.

4-52 Port Ayios Nikolaos (Agios Nikolaos) (St. Nikolo) ($37^{\circ}39' N.$, $24^{\circ}20' E.$, *H. O. Chart 4120*), located about midway

along the northwestern side of the island of Zea, is the only well sheltered harbor in the island. It is used either by vessels unable to proceed to Doro Channel and the Aegean Sea during north and northeast winds or by those unable to continue their voyage to the Gulf of Athens or Cape Malea during southerly winds. The port was formerly a coaling station much used by vessels passing to and from the Black Sea.

Port Ayios Nikolaos has depths of 22 to 5 fathoms. Along the shore are formed smaller secondary bays, Ormos Livadhi to the south, Ormos Vourkari to the northeast, and a third bay within the northern entrance point. The 3-fathom curve is as far as 150 yards off the sandy beach at the head of the first-two-mentioned bays. Anchorage is possible anywhere in the port, principally at these secondary bays according to the wind. During fresh northwesterly winds Ormos Livadhi is subject to the swell. The bottom, mud and sand, is sufficiently firm. There is a boat landing at the customhouse on the western side of Ormos Livadhi.

The entrance, open to the west, is 550 yards wide between Point Ayios Nikolaos on the north and Point Ayios Savvas on the south; both points are precipitous, and shallow depths extend only a short distance from the former point. Point Ayios Nikolaos is the extremity of a narrow precipitous tongue of land extending southwestward for a distance of 700 yards and sheltering the northern part of the port from northwesterly winds.

A factory with a conspicuous smokestack stands a short distance inland of the head of Ormos Livadhi. A church is easily identified. A conspicuous house stands 650 yards northeastward of the light on Point Ayios Nikolaos, and there is a signal station 400 yards northeastward of the light.

4-53 Lights.—A light is exhibited from a square tower on an octagonal base, the whole 26 feet high, on Point Ayios Nikolaos.

A light is exhibited from an iron column and hut, the whole 20 feet high, on Point Ayios Savvas.

4-54 Anchorage.—The best berth is in depths of 10 fathoms, mud, about 400 yards northeastward of the light on Point Ayios Nikolaos. Vessels must take care to avoid the submarine cables landed on the northern shore of this part of the port.

4-55 SETTLEMENTS.—Korisia (Livadhi), a small settlement of about 200 inhabitants, is located on the western side of Ormos Livadhi. The customhouse is located here. Vourkari (Yurkusti), a smaller settlement, is located on the southern side of Ormos Vourkari. Zea (Kea), a town of about 3,000 inhabitants, is located over 1 mile southward of Port Ayios Nikolaos; it is built like an amphitheatre on the sides of a hill.

Facilities.—The quay at Korisia has an approximate length of 820 feet, and a jetty projects 75 feet eastward from its northern end. The quay at Vourkari has an approximate length of 450 feet, and about 700 feet eastward of this quay is a jetty about 60 feet in length. Both quays and jetties are available only to small craft.

Two coal depots are located on the northern side of Port Ayios Nikolaos. Each depot is fronted by a quay with jetties. The coaling of vessels is accomplished by lighters, and vessels should anchor as near as possible to the depot.

Provisions can be procured in limited quantities. Water is supplied by a water boat.

Coastal steamers call at the port. Telegraphic and postal facilities are available at the town of Zea.

4-56 Northwestern, northeastern, and southeastern sides of Zea (H. O. Chart 4120).—Perlevo Point, located 2 miles northeastward of the entrance to Port Ayios Nikolaos, is the northern extremity of the island of Zea. Submerged rocks lie a short distance off the point, and close to the northwestern coast in a position about two-thirds of a mile southwestward of the point is Grionisi, a small rocky islet with shallows extending a short distance from it.

Port Oryas (Oryia), a narrow inlet entered immediately eastward of Perlevo Point, has depths of 11 to 3 fathoms. Its shores are clear of dangers, and the head is a sandy beach. As this inlet is open to

northerly and northeasterly winds, it is used only in case of necessity. About three-fourths of a mile eastward of the entrance is the small islet of Spano, located 350 yards off the coast with which it is connected by a rocky bank.

Cape (Kavo) Spathi, $3\frac{1}{2}$ miles southeastward of Port Oryas, is the eastern extremity of the island of Zea. About one-half of a mile northwestward of the cape is Kastri Bay, with rocks at its interior; immediately south of the cape is Spathi Bay. Kalidhonikhi Bay, open to the southeast, is one-half of a mile south of Spathi Bay.

From Kalidhonikhi Bay the southeastern coast without any dangers near it trends about $9\frac{1}{2}$ miles to Cape Tameos, the southern extremity of the island. Numerous small bays, open to the eastward, indent this stretch of the coast. One of these, Port Polies (Polars), located $3\frac{1}{4}$ miles northeastward of Cape Tameos, has a swell always setting on the beach. Here are the remains of an ancient and strongly built town supposed to be that of Karthea, and some inscriptions, as well as two colossal feet cut out in a large block of marble, are still visible.

4-57 Zea (Kea) (Keos) Channel, separating the western side of the northern part of the island of Zea from the eastern side of Makronisi (sec. 5-12), located close off the mainland of Greece, is 8 miles wide, deep, and clear of dangers. Navigational activity is great in this channel, because through it and Doro Channel pass vessels bound for the northern Aegean Sea and the Black Sea.

4-58 ANAPHI (ANAFI) (*center, $36^{\circ}22'$ N., $25^{\circ}48'$ E.*), the southeasternmost island of the Cyclades, rises from a bank having depths of less than 100 fathoms. This hilly island extends 6 miles in an east and west direction, has a maximum width of $3\frac{1}{2}$ miles and rises to its greatest elevation of 1,530 feet in the northern part. Although the depths along the

shores are considerable, small rocky islets and rocks both above and below water exist, especially along the southern shore where two islets are found 5 miles offshore and other smaller ones closer in.

Most of the inhabitants live in the town of Anafi, located inland of the southwestern point of the island. Coastal vessels call, but during the winter the approach to the harborless shore is difficult. A submarine cable connects Anaphi with Thira. The level areas are cultivated, producing grain and grapes. Cattle are raised, and other products of the island are cheese and honey.

4-59 Coast—Islets—Cape Vorio (Vori-on), the northern extremity of the island, is fronted by rocky islets. Between Cape Vorio and Cape Letros (Litra), the western extremity of the island, the northwestern coast is indented by the small bay of Vaia (Vayia). Immediately southeast of Cape Vorio is the small bay of Livoskoto, open to the northeast and having a small rocky islet at its entrance, and $1\frac{1}{2}$ miles southeastward of this same cape is Dhiaseo Point, fronted by rocks and having Dhiaseo Bay immediately northwestward of it.

Cape (Kavo) Kalamos ($36^{\circ}21'$ N., $25^{\circ}53'$ E., *H. O. Chart 4193*), the eastern extremity of the island of Anaphi, is the termination of a promontory extending 2 miles eastward and having a height of 1,510 feet. In the vicinity of Cape Spathi, 1 mile southwestward of Cape Kalamos, are some high cliffs of a reddish color. Close northward of Cape Spathi on the western of two peaks, not far apart, stands a chapel. Northward and southward of the neck of the promontory are, respectively, Kalamos Bay and Megas Potamos Bay.

On the southern side of the island are the two small islets or rocks of Ayios Nikolaos and Rukana (Rokana), 12 and 3 feet high, respectively. Rukana is 3 miles westward of Cape Kalamos and nearly 1 mile offshore, while that of Ayios Nikolaos is $1\frac{1}{2}$ miles west-northwestward of Rukana. About 200 yards northward of the islet of Ayios Nikolaos is the smaller port of Ayios Nikolaos, having a small settlement. Farther eastward is the small bay of Kalalimatakia, where are the ruins of the ancient city of Anaphi.

Ephtanah Phlini (Ftena), two islets, 50 and 60 feet high, lies $1\frac{1}{2}$ miles southward of that of Rukana. Along the east part of the eastern and larger one are rocks above and below water.

A light is exhibited from an iron column and hut, the whole 19 feet high, on Petradhia Point, the western limit of the port of Ayios Nikolaos.

4-60 Anchorage.—Local small vessels use the port of Ayios Nikolaos, but whenever putting into this port is impossible, they use either Vaia or Livoskoto, depending on the direction of the wind.

During northerly winds or in case of necessity a vessel can take temporary anchorage in depths of 26 to 6 fathoms on Anchorage Bank, located northward of Ephtanah Phlini. The berth should be selected by sounding.

4-61 Pakhia (Anafopoulo) Islet, 740 feet high, lies $4\frac{1}{2}$ miles south-southwestward of the eastern extremity of the island of Anaphi, and $1\frac{3}{4}$ miles eastward of Pakhia Islet is that of Makra, 420 feet high both being on the southeastern part of the bank that surrounds Anaphi. A rock, 3 feet high, lies 500 yards eastward of the northeastern extremity of Makra, and 650 yards farther eastward is a 5-fathom patch called Makra Rock.

4-62 THIRA (SANTORIN) (*H. O. Chart 4136*).—This group of islands, located 12 miles westward of the island of Anaphi, originally formed one circular island, but now it consists of two islands and one islet on the edge of the crater of a submarine volcano and two islets in the center of the crater. Thira, the largest and principal island, lies on the eastern edge of the crater. Therasia, together with Aspro Islet, lies on the western edge of the crater; these two were separated from Thira by an earthquake in 237 B. C. Rising from great depths in the middle of the crater are the two Kaimeni Islets; the eastern and larger one was formerly two islets, but in 1925 a volcanic eruption joined them.

Thira, having the shape of a crescent, extends $9\frac{1}{2}$ miles in a north-and-south direction and has a maximum width of 3 miles. Being mountainous for the most part, the island attains its greatest height of 1,887 feet in Mt. Elias (Ayios Ilias), located in the southeastern part. A conspicuous large white square monastery stands on the summit of Mt. Elias. When seen from a considerable distance this building looks like a brilliant snowcap on the peak.

The western coast consists of precipitous cliffs with considerable depths near them, but the northern, eastern, and southern coasts are lower and off them are depths suitable for anchorage.

The population numbers about 10,000 inhabitants, most of whom live in towns and villages scattered throughout the island and connected by roads. Numerous vineyards cover the island, and other products raised are grain and vegetables. Some mining is carried on.

Meteorological table.—See appendix II.

4-63 Cape Akrotirion (Akrotiri) ($36^{\circ}21' N., 25^{\circ}22' E.$, *H. O. Chart 4136*), the southwestern extremity of Thira, has a height

of 373 feet close within its steep cliffs, and $1\frac{3}{4}$ miles farther eastward the land attains a height of 600 feet. Shallows and rocks extend 200 yards from the cape, as well as from the coast trending three-fourths of a mile northeastward to an unnamed point. About 400 yards northwestward of this unnamed point is a 5-fathom rocky patch. A stranded wreck lies close southwestward of this point.

A light is exhibited from a square tower on a dwelling, the whole 35 feet high, located on Cape Akrotirion.

4-64 Western side of Thira—Settlements.—This side of the island recedes about 3 miles eastward to form a gulf about 6 miles in width. Being the inner side of a crater, the shore consists of dark, rocky precipices, varying in height from 500 to 100 feet and having a 45° slope, and has a dismal though interesting and picturesque appearance. It is at the top of these precipices where are built the principal towns. The depths in the greater part of the gulf and at a short distance from the shore are exceptionally great, making anchorage impossible.

Small rocky islets with rocks above and below water extend 400 yards from the southern shore in a position $1\frac{1}{4}$ miles east-northeast of Cape Akrotirion.

Balos, a small cove open to the east and suitable only for small craft, is located 2 miles eastward of Cape Akrotirion. It is the landing place for the village of Akroteri (Akrotiri), located inland at a short distance. The land southwestward of the cove rises to a height of 600 feet.

Athenous (Athinio) Bay, small and open to the north, is located on the eastern side of the gulf in a position 2 miles northeastward of Balos. It is the only place on the eastern side of the gulf where small vessels can anchor, the depths being 19 to 17 fathoms. Having a small settlement, this bay is the

landing place for the inland towns of Megalo Khorio (Megalokhorion) and Pyrgos (Pirgos). The bay has a small mole for small craft.

4-65 Skala, a small indentation serving as the landing place for the town of Thera (Thira) (Fira), is located 2 miles northward of Athenous Bay. The intervening precipitous coast with considerable depths alongside has several overhead loading conveyors, and at its middle part is Aloniki Point. Besides a small settlement, from which a winding road leads to Thera, located at an elevation of 950 feet, this indentation has two quays and one mole for small craft. In 1958 a mooring buoy was maintained for small craft. A light is shown on the landing in the town. Provisions are available, but water is scarce on the island. Telegraphic, telephonic, postal, and customs facilities are available, and coastal steamers make regular calls. During fine weather anchorage can be obtained on the bank west-southwestward of Thera, in 20 fathoms, with the white chimney at Thera bearing 063° distant three-fourths of a mile.

Cape Turlos (Tourlos), located 1 mile north-northwestward of the Skala, is the southwestern extremity of some overhanging cliffs, on which are the ruins of a Venetian fortress, and farther inland is the village of Merovuli.

Musaki (Mouzaki) Cove, located $1\frac{2}{3}$ miles northward of Cape Turlos, is the northeastern recess of the gulf. Here small craft can anchor in a depth of 5 fathoms near the shore.

From Musaki Cove the precipitous coast with great depths near it trends 2 miles westward to Ayios Nikolaos Point, close southward of which lies Ayios Nikolaos Rock. About midway along this part of the coast is the inland village of Phinika (Foinikia), and just eastward of Ayios Nikolaos

Point is that of Epanomeria (Oia), the landing place for which is Amuthi (Ammoudhi) Cove, open to the west and located close northward of the point.

A mooring buoy is located about $\frac{1}{4}$ mile east-northeastward of Ayios Nikolaos Rock.

4-66 This section has been deleted.

4-67 Therasia (Thirasia), the second largest island in the Thira group, is separated from the northwestern end of Thira by a passage having a width of nearly 1 mile and great depths in the fairway. Rising from the western edge of a large submarine crater, this island extends 3 miles in a north and south direction and has an average width of 1 mile. The eastern coast rises nearly perpendicularly to a height of 964 feet, agreeing in strata and height with that of Thira on the opposite side of the crater, but the land slopes steeply to the western side, where the coast is comparatively low.

Small quantities of grain and grapes are raised on the island. The inhabitants live in three villages, Manola (Thirasia), Potamos, and Agrilia, all being in the middle of the eastern part of the island.

A rocky bank with depths of less than 5 fathoms extends about 500 yards northward from the short northern coast of the island, and 500 yards eastward of Cape Riva (Ayia Irini), the northern extremity of the island, is a rocky patch with 3 feet of water over it. Southward of Cape Riva is a bay with depths too great for anchoring and shallows and dangers near the shore. Tino Point, the southeastern limit of this bay, has a reef extending a short distance from it.

Nikolo (Ayios Nikolaos) Bay, located westward of Simandiri Point, the easternmost point of the island, is too deep for an-

choring but is the landing place for the villages.

Cape Tripiti, the southeastern extremity of the island, has a height of 605 feet. Shallows and rocks extend a short distance from it. From Cape Tripiti the southern coast is precipitous and in places has dangers extending a short distance offshore. Kimina Point, the western limit of the southern coast, has close off it Kimina Rock, a small rocky islet.

Extending about 250 yards from the low western coast of Therasia are depths of less than 3 fathoms with rocks above and below water. An abrupt but regular increase in the depths takes place, so that about 500 yards offshore the depths are 8 to 9 fathoms, rock.

4-68 Mansell Reef ($36^{\circ}24' N.$, $25^{\circ}20' E.$, *H. O. Chart 4136*), located three-fourths of a mile southward of Kimina Rock, has a least depth of $1\frac{1}{2}$ fathoms, and 300 yards southward of the shoalest part is a 5-fathom rocky patch. Close eastward of this reef the depths increase suddenly.

A vessel should give Mansell Reef a wide berth, and not approach its western side into depths of less than 15 fathoms.

Aspro Islet, so named from the white appearance of its summit, 200 feet high, lies about midway between the southeastern extremity of Therasia and the southwestern extremity of Thira. It is surrounded by a rocky patch, with 6 fathoms, or less, over it, which extends about 500 yards northward and eastward, and 800 yards southward, from the islet. A detached $2\frac{1}{2}$ -fathom rocky patch lies 350 yards eastward of the islet. Beyond these limits the depths are great to the north and east, less to the west, and especially less to the south, where a bank with depths of less than 10 fathoms, sand and weeds, connects the islet with Cape Akrotirion, the southwestern extremity of Thira. In any case the

passage of the straits between Aspro, Thira, Therasia, and Paleo Kaimeni is simple along their axis.

4-69 Anchorage.—During good weather temporary anchorage can be taken 600 yards southwestward of Aspro Islet in depths of 9 to 10 fathoms, sand and weeds.

Kaimeni Islets, two in number, are located nearly in the middle of the gulf formed by the western side of the island of Thira, being about 1,800 yards off the island. Paleo Kaimeni (Palaia Kammeni), the western islet, 320 feet high, emerged in 197 B. C. This volcanic islet has a dark color. Neo Kaimeni (Nea Kammeni), the eastern and larger islet of lava and cinders, appeared in 1707. Its northeastern part, Mikro Kaimeni, was formerly a separate islet, but a volcanic eruption in 1925 joined them.

Paleo Kaimeni and Neo Kaimeni are separated by a channel over 200 yards in width. The water in the channel is deep, but in the northern entrance are two rocky patches, formerly islets, the eastern one being just above water and the western one just below water. About 400 yards northward of these two dangers and close off the coast of Neo Kaimeni is a rock covered by $1\frac{3}{4}$ fathoms of water, and close northward of this rock is the entrance to a deep but narrow inlet indenting Neo Kaimeni.

The bank with depths of 20 to 34 fathoms located 400 yards eastward of the northeastern part of Neo Kaimeni is not recommended for anchoring, as the bottom is rocky and the depths are too uneven. A light is shown on the southeastern part of the islet.

4-70 Caution.—On account of volcanic activity in the Kaimeni Islets during recent years, vessels are warned to approach the eastern part of Neo Kaimeni with caution, as changes in depths have taken place.

4-71 Northern side of Thira.—From Amuthi Cove (sec. 4-65) the coast of Thira trends first three-fourths of a mile northward and then three-fourths of a mile northeastward to Cape Mavropetra, the northernmost point of the island. Depths of 3 fathoms with rocks above and below water extend 250 yards offshore, increasing their distance to 400 yards at Cape Mavropetra. A dangerous obstruction was reported (1968) to lie about 1 mile northward of Cape Mavropetra. From the latter cape the low northern shore with depths of less than 3 fathoms extending 150 yards offshore trends 2 miles eastward to Cape Kolombos (Kolomvos), the northeastern point of Thira.

The regular increasing depths off the northern side of Thira are suitable for anchoring, but as this side of the island is attacked by all winds except those from the south, vessels should anchor off the southern side of the island, which affords incomparably greater safety.

Kolombos Bank (Kolomvos Reef) ($36^{\circ}31' N.$, $25^{\circ}29' E.$, *H. O. Chart 4136*), located $3\frac{1}{2}$ miles northeastward of Cape Kolombos, is composed of cinders, over which the depth is 10 fathoms. It is the remains of a volcanic islet, which first appeared during the earthquakes at Thira during 1649.

4-72 Northeastern and eastern sides of Thira.—The low northeastern shore of the island trends $5\frac{1}{2}$ miles southeastward from Cape Kolombos to Kamari Point, the easternmost limit of the island. Depths of less than 3 fathoms extend 150 yards offshore. About $2\frac{1}{2}$ miles southeastward of Cape Kolombos is Vurvulo (Vourvoulos) Point, off which is the anchorage for the inland village of Vurvulo (Vourvoulos). About one-half of a mile north-northwestward of Kamari Point is a small artificial harbor only partially completed. The town of Monolithos has been built here, and at its northwestern end stands a chimney which is a good landmark.

From Kamari Point the eastern shore, along which the 3-fathom curve is at the most 250 yards offshore, trends $2\frac{1}{2}$ miles southward to Cape Messa Vuno (Mesa Vouno), the termination of Messa Vuno, a precipitous mass having on it the ruins of the ancient city of Thira. The bay northward of Cape Messa Vuno has depths of 7 to $3\frac{1}{4}$ fathoms and some sunken harbor works at its head. Anchorage in this bay is inferior to that southward of Kamari Point.

4-73 Anchorage.—Although the depths and bottom along the entire eastern side of Thira are suitable for anchoring, the recommended berth is in 9 fathoms one-half of a mile southward of Kamari Point and one-fourth of a mile offshore.

4-74 Southeastern and southern sides of Thira.—Between the high, steep, rugged cliffs of Messa Vuno and Cape Exomiti, $2\frac{3}{8}$ miles southwestward, the southeastern side of the island is well cultivated. The 3-fathom curve is about 250 yards offshore.

Cape Exomiti, the southernmost point of Thira, is a low point at the base of Mt. Platanimos, a limestone hill having ancient tombs cut in its southeastern side. The cape is surrounded by rocks and shallow water, which extend southward for a distance of 250 yards. On the western side of the cape project the sunken remains of two ancient moles.

The southern coast of Thira is contained between Cape Exomiti and Cape Akrotirion, $4\frac{1}{2}$ miles west-northwestward. Except for the former cape this side of the island is precipitous and high, and has a conspicuous promontory $1\frac{1}{2}$ miles eastward of Cape Akrotirion. Depths of less than 3 fathoms with rocks above and below water extend 400 yards offshore along this side of the island, and a small rocky islet with rocks on its southern side lies 250 yards off the conspicuous promontory.

Anchorage.—Depths of less than 9 fathoms extend one-half of a mile off the southern shore of Thira and as far as 1 mile southward from Cape Exomiti. The bottom of sand and weeds makes suitable holding ground, and this area can be used as a temporary refuge from northerly winds. The best berths are on either side of the above-mentioned promontory. The western one is in a depth of 7 fathoms about 1,200 yards northwestward of the promontory and 500 yards offshore; here vessels are sheltered against winds from north, through east, to east-southeast. The eastern one is in a depth of 7 fathoms about $1\frac{3}{4}$ miles northwestward of Cape Exomiti and 800 yards offshore.

Shelter from northwesterly winds can be obtained in a depth of 9 fathoms with Cape Exomiti bearing 256° , distant three-fourths of a mile.

4-75 Christiani (Khristiani) Islets ($36^\circ 15' N.$, $25^\circ 13' E.$, *H. O. Chart 4136*) lie 10 miles southwestward of the southwestern extremity of the island of Thira.

Christiani (Khristiani), the northernmost and largest of the three islets, extends 1 mile in a north and south direction and attains a height of 914 feet in a peak in the southwestern part. The depths are great near the rugged and bold coast, but in places near the coast are rocks above and below water.

Askania, the middle islet, is 800 yards long and 470 feet high. Near the coast lie rocks above and below water. Askania is separated from the southeastern extremity of Christiani by a passage having a width of 800 yards. Rocks lie on both sides of the passage, and in the middle of the fairway lies a $2\frac{1}{2}$ -fathom shoal.

Eskhati Rock, lying 1,800 yards southeastward of Askania, is a small and low rocky islet having a length of 200 yards. Rocks

lie near the northeastern and southwestern parts of this islet, but the water is deep everywhere at a distance of 200 yards from the islet.

A light is exhibited from a white beacon, 10 feet high, on Eskhati Rock.

4-76 FOLEGANDROS (PHOLEGANDROS) (POLYKANDROS) (*B. A. Chart 2753*), the island located 22 miles west-northwestward of that of Thira and 10 miles southeast of that of Polyaigos (sec. 4-19) of the Milos group, extends 7 miles in a northwesterly and southeasterly direction, and has a maximum width of $2\frac{1}{2}$ miles in its southeastern part, where the island also attains its greatest height of 1,363 feet in Mt. Ayios Eleutherios. The coast, especially along the southeastern part of the island, is high and precipitous, and has near it deep water with scattered rocks; off-lying dangers do not exist. The island lacks a good harbor.

The level areas of this hilly and almost treeless island are cultivated with care, producing small quantities of olives, figs, and grain. Some cattle are raised on the island. The population, numbering about 550 inhabitants, is centered mostly in the village of Folegandros; in addition the island has several other small settlements, and several chapels located in the northwestern part of the island.

4-77 Southwestern side of Folegandros.—From Cape Vintsentsos, the easternmost point of the island, the coast trends first three-fourths of a mile southwestward, then westward, and finally northwestward to Vathi Bay, located about midway along this side of the island. Pelayia, a small rocky islet having a rock off its eastern point, lies a short distance off the coast before it turns westward.

Vathi Bay, open to the south and west, can be used as a refuge from northerly and easterly winds, although the former blow in strong squalls. The depths in the inner part of the bay range from 10 to 5 fathoms, and the 3-fathom curve is 150 yards off the head of the bay. The best berth is in 8 fathoms, sand and weeds, about 350 yards south-southwestward of the point just westward of the head of the bay.

Aspropounda, a point with a lighthouse, is located $1\frac{1}{2}$ miles westward of the head of Vathi Bay. Livadhi Bay, close northwestward of Aspropounda, affords shelter to small craft against easterly and northeasterly winds. This small bay is the port for the settlement of Livadhi. Between Livadhi Bay and Cape Kiparissos (Kyparissos Point), the northwestern point of the island, the coast is indented by another small inlet, open to the west-southwestward and having rocks in it.

A light is exhibited from a white square tower with dwelling, the whole 36 feet high, on Aspropounda.

4-78 Northeastern side of Folegandros.—Cape Vigla, 1 mile east-northeastward of Cape Kiparissos, is the northernmost point of the island, and along the precipitous coast between them are rocks. From Cape Vigla the coast with rocks near it trends 1 mile southeastward to Cape Kavallaris, and $2\frac{1}{4}$ miles southeastward of the latter point is Plaka, a point having on either side of it a small bay open to the northward. Along the shore of the western bay are rocks, and inland of the eastern bay is the village of Folegandros, located on a height so that communication from this bay is difficult. About 800 yards southeastward of the eastern entrance point of the eastern bay is a point where there is a cave 33 feet above the sea, and $1\frac{1}{4}$ miles farther southeastward is Cape Dhomeneos, although midway be-

tween them is an unnamed point projecting northward for a distance of about 400 yards. Between Cape Dhomeneos and Cape Vintsentsos, $1\frac{1}{4}$ miles south-southeastward, the coast is indented by several small bays, one of which is Karavostasi Bay.

4-79 Karavostasi Bay.—Immediately south of Cape Dhomeneos is a small bay open to the east. The bay has depths of 5 fathoms, but in the entrance in a position 350 yards southeastward of Cape Dhomeneos is a small rocky islet having southward of it two reefs, named Poulioxeres. The first reef with a depth of $2\frac{1}{2}$ fathoms extends 50 yards southward from the islet, and 120 yards southeastward of this islet is the second reef with an islet on it.

Karavostasi Bay proper is separated from the above-mentioned bay by a narrow tongue of land projecting 350 yards in an easterly direction, and extending 150 yards east-northeastward from the extremity of this tongue is a shallow but steep-to spit. The bay constitutes the only port for the island and can be used as a refuge against all but easterly winds. Its size is small, the length and width being only about 400 yards, and the depths range from 10 to 5 fathoms, the 3-fathom curve being 150 yards off the sandy beach at the head.

Dhio Adhefia, two small rocky islets joined by shoal water, lie in the entrance in a position 300 yards south-southeastward of the northern entrance point. A detached rocky patch of $3\frac{3}{4}$ fathoms lies 120 yards northward of the northwestern islet. Between these islets and Latini Point, the southern entrance point of Karavostasi Bay, is a passage having a width of 250 yards and 8 fathoms in the fairway. This passage can be used by vessels coming from the southward. The main entrance, however, is northward of the islets, and vessels whose

draft makes them avoid the $3\frac{3}{4}$ -fathom patch should steer westward for the light on the northern entrance point and turn south-westward for the anchorage after having passed the islets. Coming from the north, vessels must keep offshore to avoid Poulioxeres Reefs and the spit at the light.

Between the southern entrance point of Karavostasi Bay and Cape Vintsentsos are three other small bays, Vintsentsos, Livadhi, Avlakaki, all open to the east and having depths of less than 3 fathoms for the most part. Off the point separating the first two-mentioned bays and connected to it by depths of less than 3 fathoms is the islet of Ayios Ioannis, on which stands a chapel.

A light is exhibited from an iron column with a masonry base, the whole 19 feet high, on the northern entrance point of Karavostasi Bay.

Anchorage.—The best berth in Karavostasi Bay is about 250 yards southwestward of the light in a depth of $6\frac{1}{2}$ fathoms, sand.

4-80 Ayios Artemios, a small settlement, is located on the northern side of the head of Karavostasi Bay. A road runs northwestward to the village of Folegandros. The place has postal and telegraphic facilities, and coastal steamers make regular calls.

4-81 Islets and dangers between Folegandros and Sikinos.—The strait between the eastern extremity of the island of Folegandros and the southwestern extremity of that of Sikinos is $5\frac{1}{2}$ miles in width, but in this strait are three separate groups of islets dividing it into four fairways.

Adhelfia (Adelphia) Rocks, two in number, lie $1\frac{1}{2}$ miles east-northeastward of the eastern extremity of Folegandros, from which they are separated by a clear fairway. The eastern rock, 306 feet high, and the western one, 179 feet high, are connected by shallow water, but elsewhere the rocks are steep-to except for a clearly visible rock

close off the northern point of the eastern one.

Two detached shoals, one with a depth of $2\frac{1}{2}$ fathoms and the other with a depth of $4\frac{1}{2}$ fathoms, lie, respectively, 700 and 500 yards northwestward of the visible rock at the northern point of the eastern Adhelfia Rock. The depth between these two shoals is 16 fathoms.

4-82 Kardhiotissa (Kardiotissa), located near the middle of the strait separating Folegandros from Sikinos, is an islet extending $1\frac{1}{4}$ miles in a northeasterly and southwesterly direction and attaining a height of 623 feet. The islet is steep-to except for shoal depths extending 200 yards from its western side, and the fairway between this side and the Adhelfia Rocks is 1 mile wide and deep. About midway along the southeastern side of the islet stands a chapel.

Kaloyeros, an islet with that of Karavos close westward of it, lies 600 yards southwestward of the southwestern extremity of Sikinos, from which it is separated by a deep fairway. These two islets are connected by a reef, and both are fringed by shallow depths except the precipitous southeastern side of Kaloyeros.

A $3\frac{3}{4}$ -fathom shoal lies in the middle of the fairway having a width of 1,500 yards between Karavos on the east and Kardhiotissa on the west. This steep-to patch having a length of 220 yards in a northeast and southwest direction is indicated by a sudden change in the color of the water, and that part of the fairway westward of it should be preferred.

4-83 SIKINOS (*B. A. Chart 2753*), the island located between that of Folegandros and that of Ios, extends $7\frac{1}{2}$ miles in a northeasterly and southwesterly direction, has a maximum width of more than 2 miles

in its middle part, and rises to a height of 1,968 feet in Mt. Troullon, located in the southwestern part. The depths are great near the precipitous coast, close off which lie rocks and two islets. The island lacks a harbor, but landing is effected at the Skala, located about midway along the southeastern coast.

The level areas of this hilly and barren island are cultivated with care, producing in small quantities grain, figs, and grapes. The apiarian industry is well developed. The inhabitants number about 650, centered mostly in the inland villages of Kastron and Vouni.

4-84 The northwestern side of Sikinos does not present anything of interest. It is indented by numerous small inlets open to the west and unsuitable for anchorage. The largest inlet is 2 miles northeastward of the southwestern extremity of the island, and 1 mile northward of this inlet is Avoladho Islet, separated from the coast by a distance of 250 yards and a depth of 8 fathoms. Vorino, the inlet located one-half of a mile westward of Cape Malta (Kavos tis Maltas), the northeastern extremity of the island, and open to the north, is unsuitable for anchorage.

4-85 Southeastern side of Sikinos.—Malta, the small bay located immediately southward of Cape Malta and open to the eastward, has depths of 5 to 3 fathoms in its inner part and greater depths in the outer part. The bay is suitable for anchorage, but its head is encumbered with rocks.

Beyond the small bay of Malta the coast trends southwestward, and 1 mile from the bay is the small rocky islet of Ayios Yeoryios, separated from the coast by a passage 300 yards in width. About three-fourths of a mile southwestward of the islet is the small bay of Ayios Nikolaos, open to the southeast; off its shore is a small islet, and a chapel

stands at the head of this bay. Small craft can obtain shelter from northerly and northwesterly winds. The remainder of the southeastern coast does not merit description except the Skala.

4-86 Skala, located 3 miles southwestward of Cape Malta, is the only port for the island of Sikinos, affording safety from northerly and northwesterly winds. Having a width of 300 yards, this small bay recedes the same distance in a northerly direction to the sandy beach at the head. The depths in the inner part are less than 3 fathoms. Coastal steamers call, and anchor temporarily in a depth of $3\frac{1}{4}$ fathoms in the middle of the entrance.

A small settlement is located at the Skala. There is a small mole for boats. Provisions and drinking water are available in small quantities. The island has telegraphic and postal facilities.

A light is exhibited from an iron column with a masonry base the whole 19 feet high, on the eastern entrance point of the Skala.

4-87 IOS (NIOS) (*B. A. Chart 2753*) is the large island eastward of the northeastern extremity of the island of Sikinos, from which it is separated by a deep passage with a width of 3 miles. Having a softer and more genial aspect than Sikinos and Folegandros, this rather mountainous island has a length of $9\frac{1}{2}$ miles in a general north and south direction, exceeds $4\frac{1}{2}$ miles in width, and attains a height of 2,410 feet in its middle part. The coast is indented by several bays, the most important being that of Ios with its town on the western side of the island. Except for several small islets and rocks close offshore there are no off-lying dangers.

The level areas on the island are well cultivated and produce sufficient quantities of grain, olives, tobacco, grapes, and figs.

The raising of cattle is a well developed industry. The population numbers about 1,800 inhabitants, most of whom live in the capital town of Ios.

4-88 Southwestern side of Ios.—Dhiakofto Point (*plan on B. A. Chart 2753*), the westernmost point of Ios, is the extremity of a peninsula extending 1,200 yards west-southwestward from the island. Being rather precipitous and attaining a height of 125 feet in one place, the southern side of this peninsula forms the northern shore of Koumbara Bay. Lying south-southwestward of and separated from Dhiakofto Point by a narrow channel with a depth of $4\frac{1}{4}$ fathoms is Dhiakofto Islet. As this steep-to and narrow islet with a length of 200 yards has a rock and a much smaller islet lying as far as 100 yards southward of its southern point, vessels directed to Ios Bay from the north by night should not alter course for the bay until the light at the bay bears east.

Koumbara Bay, open to the southwest, indents the southwestern coast immediately eastward of Dhiakofto Point. The bay has depths of 19 to 5 fathoms, sand, and the 3-fathom curve is as far as 200 yards off the head. A small islet surrounded by shallows to a short distance lies 150 yards off the middle of the northern shore, with which it is connected by shallows. An above-water rock is located on the shallows extending 100 yards westward from the southeastern entrance point, and 250 yards westward of this same point is a detached rocky shoal with a depth of 1 fathom. Koumbara Bay affords refuge from northerly winds, but its usefulness is lessened by very safe anchorage in Ios Bay immediately to the east of it.

4-89 Ios Bay (Ormos Iou) (Port Nios) (*plan on B. A. Chart 2753*), entered about 1,800 yards southeastward of Dhiakofto Islet, is one of the safest anchorages in the Cyclades. Having a width of 600 yards in the entrance

between Cape Fanari on the west and Cape Xeres on the east, the bay with a similar width trends first northward and then north-eastward for a total distance of 1 mile. The bay has depths of 22 fathoms in the outer part, decreasing gradually to 11 and 5 fathoms in the inner part, where the 3-fathom curve is about 150 yards off the sandy beach at the head. Kokomi Point is the name of the projecting point on the eastern side of the outer part of the bay, and where the inner eastern shore turns eastward stands the church of Ayia Irini.

Rocks and shallows extend 150 yards southward and 200 yards southwestward from Cape Xeres, the eastern entrance point of the bay.

Dhespoti Reef, on which the least depth is $8\frac{1}{2}$ fathoms, lies 800 yards southwestward of Cape Fanari, the western entrance point of the bay.

A light is exhibited from a tower on a white hut, the whole 21 feet high, on Cape Fanari.

4-90 Anchorage.—During the winter the recess of Ios Bay is sometimes attacked by southwesterly winds, which blow hard there. From all other directions vessels have complete shelter, and the holding ground is good. The best berth is in a depth of 10 to 8 fathoms in a position 350 yards northward of the church of Ayia Irini.

4-91 Ios, the capital town with a population of about 1,500, is built on a small hill about one-half of a mile eastward of the head of Ios Bay. On the eastern side of the head of the bay is the landing place, a small settlement with a quayed shore. Telegraphic, postal, and customs facilities are available, and coastal steamers make calls.

4-92 Southwestern side of Ios (continued).—The coast for 1,600 yards eastward from Ios Bay is indented by two small bays open to the south. Kolitzani Bay, the eastern one, has depths of 5 fathoms in its inner

part, the 3-fathom curve being 150 yards off the sandy beach at the head. Rocks and shallows extend 70 yards southward from the eastern entrance point.

Milopotamos (Milokotos) Bay, entered between the eastern entrance point of Kolitzani Bay and Cape Kakovolo, one-half of a mile southeastward, recedes one-half of a mile in an east-northeasterly direction. The bay has depths of 10 to 5 fathoms, the 3-fathom curve being 150 yards off the sandy beach at the head, where the land is level and cultivated. Good shelter from northerly and easterly winds, especially the etesians, is available. Small vessels can anchor in the middle of the bay in a depth of 5 fathoms, sand, about 400 yards off the sandy beach at the head. Larger vessels can anchor farther off, the depths up to Kolitzani Bay being under 22 fathoms.

Between Cape Kakovolo and Cape Akhla-dhi, the southern extremity of the island of Ios, the coast presents nothing of interest to navigation. Sapounokhoma is the name of the locality 1 mile southeastward of Cape Kakovolo, and one-half of a mile farther southeastward is Klima Bay, which could afford shelter to small craft in case of necessity during easterly winds. Depths of less than 3 fathoms extend 250 yards southwestward from the northwestern entrance point of Klima Bay, and Prasso Islet, fronting the southeastern entrance point, has similar depths extending a considerable distance northward from it. Pikra nera and Pepa are two small bays located, respectively, three-fourths of a mile and $1\frac{1}{2}$ miles southeastward of Klima Bay, and between them and one-third of a mile offshore is the small Pepa Islet, having rocks northward and southward of it.

4-93 Southern and eastern sides of Ios.—Manganari Bay takes up the entire southern side of the island, being $1\frac{1}{2}$ miles wide

in its entrance between Cape Akhladhi on the west and Cape Pargari on the east. The inner part of the bay has depths of 10 to 5 fathoms, sand, and close off the eastern part of the head is the small islet of Pori. Varvaro, a rocky islet with a rock above water close northward of it, lies 500 yards south-southeastward of Cape Pargari, from which it is separated by depth of 12 fathoms. This bay affords excellent shelter from northerly winds, and a good berth is in 6 fathoms about 220 yards south-southwestward of the islet of Pori.

Tris Klisies (Luka Avlaki), the bay located 1 mile northeastward of Cape Pargari, recedes 1,200 yards northwestward from its entrance having a width of 900 yards between Cape Steni Pounda on the south and Cape Papas on the north. The 3-fathom curve is as far as 150 yards off the western shore, and there are some rocks within this curve. A small islet with rocks southward of it lies close northward of Cape Steni Pounda. This bay affords shelter from northerly and westerly winds. A good berth is in 11 fathoms, sand and weeds, about 600 yards westward of Cape Papas.

Kalamos Bay, open to the east, is a slight indentation in the eastern coast about $1\frac{1}{2}$ miles northward of Tris Klisies. The bay has depths of 10 to 5 fathoms, and rocks lie close off the shore. The bay is suitable only for temporary anchorage during westerly winds.

Cape Yeoryios (Georgio Puda), the easternmost point of the island of Ios, is 1 mile northeastward of Katsivela, the northern entrance point of Kalamos Bay.

4-94 The northeastern side of Ios has a length of about $6\frac{1}{2}$ miles between Cape Yeoryios and the northernmost point of the island. Having deep water near it, this coast is indented by several bays open to the east and unsuitable for anchorage. Vathi

Remma, the first of these bays, is one-half of a mile northward of Cape Yeoryios, and about one-half of a mile northwestward of Vathi Remma is that of Ayia Kiriaki. Psatho Bay (Ormos Psathas), about $2\frac{1}{2}$ miles northwestward of Cape Yeoryios, has Psatho Islet, 307 feet high, lying close off its northern limit. The northern and eastern sides of this islet are clear of dangers. Ayia Theodhoti (Ormos Theodhotis), about $1\frac{1}{2}$ miles northwestward of Psatho Islet, is a wide and open bay with a sandy shore at its head. Close southeastward of the northernmost point of the island are the two very small bays of Kalo Avlaki and Yero Angeloi, and in their vicinity is an ancient tomb, believed to be that of Homer.

4-95 Northern and western sides of Ios. —Petalidhi (Petalida), a small islet, lies 800 yards northward of the northernmost point of the island. Aspros Gremnos (Aspros Agrimnos), about $1\frac{3}{4}$ miles west-southwestward of Petalidhi, is the northwestern point of the island, and one-half of a mile eastward of this point is a small rocky islet fronting an inlet indenting the northern coast.

From Aspros Gremnos the western coast of the island trends 4 miles south-southwestward to Dhiakofto Point and its islet. Having great depths near it, this coast has numerous inlets open to the west and unsuitable for anchorage. About $2\frac{1}{2}$ miles south-southwestward of Aspros Gremnos and one-fourth of a mile off the entrance to one of the inlets is Aryiro Islet, with rocks along its shores, and about 1,200 yards farther southward but closer to the shore is that of Stavolia.

Manitas Bay (Ormos Maniata) is the bay located immediately northward of the peninsula terminating in Dhiakofto Point. Open to the west, this bay has a width of 400 yards in the entrance and recedes the same dis-

tance. Depths of less than 3 fathoms extend 200 yards from the head of the bay.

4-96 ANYDRO (ANIDHROS) ($36^{\circ}37'$ N., $25^{\circ}42'$ E.), also called Amorgopoula, is a small uninhabited islet occupying almost a central position in the ocean area between the islands of Anaphi, Thira, Ios, and Amorgos, being 9 miles southwestward of the southwestern part of Amorgos, the nearest land. A conical rock lies close off the southeastern point of the islet, and three-fourths of a mile southwestward of the islet is a rock awash.

4-97 AMORGOS (*western extremity, $36^{\circ}48'$ N., $25^{\circ}45'$ E., H.O. Chart 4153*), the large island located 17 miles eastward of that of Ios, is the easternmost island of the Cyclades. This island extends 18 miles in a general northeasterly and southwesterly direction and has a width varying from 1 to 3 miles. Being mountainous for the most part, the island attains its greatest elevation in Mt. Krikelos (Krikelon Oros), 2,693 feet, in the northeastern part, while in the middle and southeastern parts rise, respectively, Mt. St. Elias (Ayios Ilias), 2,175 feet high, and Mt. Korax, 1,890 feet high. Precipitous and inhospitable on its southeastern side, the island has safe and good anchorages along its northwestern side. The depths off the island are considerable and free of off-lying dangers, but along the northwestern coast and off the eastern end of the island are islets, which make caution necessary on the part of those navigating in the vicinity of the island.

The island, fertile in the level areas, produces quantities of grains, vegetables, olives, and grapes. The cattle industry is rather limited. The climate is dry and consequently healthy. The air is fresh even during the summer, but that at St. Anna Bay is an ex-

ception, as the area is not open to the etesians. Numbering about 4,500, the inhabitants are engaged principally in agriculture and live in villages in the interior and along the northwestern coast, all being connected by a road running the length of the island.

4-98 NORTHWESTERN SIDE OF AMORGOS.—Cape Kalotari (Kaloteri), the westernmost point of the island, has close south-southwestward of it a small rocky islet. The islet is connected to the cape by a rocky shoal. On the eastern side of the cape is a small inlet open to the east. Having depths of 10 fathoms in its entrance and 3 fathoms at 150 yards off the sandy beach at its head, this inlet can be used by small craft. At the head is the small settlement of Kolofana.

4-99 Gramvousa (Grabousa) (Gravusa) Islet, located 600 yards northward of Cape Kalotari, extends 1 mile in a north and south direction. The northern part of the islet is a narrow tongue of land, having a much smaller islet close northward, and a similar islet 500 yards eastward, of it. Both sides of the channel separating Gramvousa Islet from the cape have rocks along the shore, but in the middle of the fairway is a depth of 7 fathoms. Between Gramvousa Islet and Antikaros (sec. 4-111), an islet lying northwestward of it, is a deep and clear passage having a width of $2\frac{3}{4}$ miles.

During easterly winds temporary anchorage can be obtained 500 yards off the southwestern side of Gramvousa Islet in depths of 13 to 10 fathoms.

Gramvousa Light is shown on a small islet about 200 yards northward of the northern extremity of Gramvousa Islet.

4-100 Coast.—Paradisi (Paradhisia) is the name of the small village at the head of the small inlet located three-fourths of a mile eastward of Cape Kalotari. Fronting the entrance to this small inlet is a small rocky islet with rocks at its southwestern point, but the inlet is clear of dangers. Immedi-

ately east of the inlet is the small bight of Dhimitria, open to the northwest, and 1,200 yards northeastward of this bight is Mavri Miti Point, with a small islet 400 yards southwestward of it and close offshore. Troulli Point, located 1,600 yards northeastward of Mavri Miti Point, has rocks extending 200 yards northwestward from it, and the bay formed between these two points is called Tsoukala.

Petalidi (Petalidha), a small islet with a chapel on it, is located 600 yards northeastward of Troulli Point. Except for the shoal extending 300 yards westward from the islet and the rocks extending 200 yards northwestward from the point the water is deep in the passage separating the islet from the point.

Port Akrotiri, a narrow inlet trending one-half of a mile in a south-southwesterly direction and having a width of 250 yards, is entered immediately eastward of Troulli Point. The shores of this inlet are clear, and the depths are suitable for small craft.

Limanari Perivolas, a small bay open to the north, is located one-half of a mile eastward of Port Akrotiri. Kastri, a point one-third of a mile eastward of the projecting eastern entrance point of Limanari Perivolas, has on it the ruins of an ancient town. About $1\frac{1}{4}$ miles eastward of Kastri commence two small bays, Ayioi Saranda and Foinikais. The latter, or eastern, one is the port for the settlement of Lefkes.

4-101 Port Vathy (Limn Katapola) ($36^{\circ}50' N.$, $25^{\circ}52' E.$, *H. O. Chart 4153*), located three-fourths of a mile northward of the small bay of Foinikais, is 800 yards wide in its entrance between Kato Akrotiri Point on the south and Cape Elias (Ayios Ilias) on the south, and recedes 1 mile in an easterly direction. The depths in the inner part are suitable for anchorage, being less than 11 fathoms, sand. During northeasterly gales heavy squalls descend into the bay, but ves-

sels ride in safety, as the holding ground is good. There is no danger in entering, as the shore is steep-to. It has been reported that a vessel with a length of 328 feet or more does not have swinging room at a single anchor.

A light is exhibited from a square tower on a dwelling, the whole 34 feet high, on Cape Elias. A conspicuous white house stands on the summit of the cape about $1\frac{3}{4}$ miles northeastward of the light structure.

4-102 Katapola, a village of about 650 inhabitants, is located at the head of Port Vathy. It is the port for Kastron (Amorgos), the capital, located $1\frac{1}{2}$ miles eastward on a hill about 1,214 feet high. Provisions and water are available in limited quantities. The village has telegraphic, postal, and customs facilities, and coastal steamers call.

4-103 Coast.—At Dysari (Alatos) Point, located 1 mile north-northeastward of Cape Elias, the coast turns east-northeastward, and after a distance of one-half of a mile forms in succession the small bays of Vli-khadha, Amouriati, and Krio Nero, all open to the north and unsuitable for anchorage.

4-104 Kaloterion (Kalotiri) Bay.—This bay is located between the northwestern coast of Amorgos Island and the southern coast of Nikuria (Nikouria) Island, the western end of which lies 3 miles northeastward of Dysari Point, and the eastern end of which is connected to Amorgos Island by shallow water. Nikuria Island is $2\frac{1}{2}$ miles in length in an east-and-west direction, has an extreme width of over one-half of a mile, and at a distance of three-fourths of a mile from its western end rises abruptly to a height of 1,140 feet. Atimo Islet, 276 feet high, is separated from the western end of the southern side of Nikuria Island by a narrow, deep channel, and the main entrance to the bay is southward of Atimo Islet and has a width of three-fourths of a mile. The precipitous and steep-to coast of Nikuria Island is clear of dangers, and a rock above

water lies close westward of Atimo Islet. Nikuria Island is used for grazing.

A 5-fathom rocky patch lies in the middle of Kaloterion Bay in a position about 1,800 yards east-southeastward of Atimo Islet. This patch is surrounded by deep water.

Anchorage, sheltered fully from northerly and southerly winds and partly from easterly winds, may be obtained in the inner part of Kaloterion Bay. A good berth is in 18 to 20 fathoms south-southeastward of a small church on the southern side of Nikuria Island.

4-105 St. Anna (Ayia Anna) (Aigiali) Bay, entered southward of Cape Langada (Akrotiri), located 2 miles northeastward of the eastern end of Nikuria Island, has a width of 1 mile in its entrance and recedes eastward about the same distance to the sandy beach at the head. At the head are three small settlements, Potamos, Aiyiali, and Fokio Tripa (Foukotripa). Built on a hill 1 mile eastward of the bay is the village of Langada (Langadhia), and inland on the northern side of the bay is the village of Tholaria. Coastal steamers call. A spherical mooring buoy is located near the head of St. Anna Bay.

A light is shown from a metal tower, 16 feet high, on Cape Langada

St. Anna Bay is open to the west and southwest, but in the latter direction is sheltered in part by Nikuria Island. The depths are considerable, but in case of necessity a vessel could anchor in the northeastern part where, however, the holding ground is bad, the bottom being loose shingle. Vessels using this bay in unsettled weather must be on watch for sudden shifts of the wind. Because of the height and proximity of the surrounding hills, violent gusts are sometimes encountered.

4-106 Coast.—From Cape Langada, the northern entrance point of St. Anna Bay, the high and precipitous coast trends 3 miles in a general east-northeasterly direction to

Cape Villakarda (Vilakardha), the northernmost point of Amorgos Island. The depths are great near the coast, but a rock, 30 feet high, lies $1\frac{1}{4}$ miles northeastward of Cape Langada and 800 yards offshore. The existence of this rock must be taken under serious consideration by vessels passing along this part of the coast at night, and large vessels should give the coast a berth of 1 mile. Port Livada (Vlikhadha Bay), located one-half of a mile westward of Cape Villakarda and open to the northwest, is a narrow inlet receding for a distance of one-half of a mile. Although this narrow inlet is clear of dangers, it is unsuitable for anchorage on account of the great depths.

From Cape Villakarda the northeastern coast of Amorgos Island trends $4\frac{1}{2}$ miles southeastward to Cape Prosino (Prasino), the eastern extremity of the island. This coast, as well as Cape Prosino, is precipitous and steep-to.

4-107 Liadi (Liadhoi) Islets ($36^{\circ}54' N.$, $26^{\circ}11' E.$, *H. O. Chart 4153*), four in number, lie 4 miles eastward of Cape Prosino and occupy an area 1 mile long in a north and south direction. The northernmost and largest islet is 170 feet high and barren. Close off the southeastern point of this large islet is a small steep-to islet, and one-fourth of a mile southward of this same large islet is another small islet, the depths in the passage between them and as far as one-fourth of a mile westward from it are shoal and rocky. Close eastward of this last-mentioned islet is the fourth islet, low and flat.

Light.—A light is shown from the northernmost of the Liadi Islets, at an elevation of 211 feet.

Kineros Island, located 6 miles northeastward of the Liadi Islets, is described in section 8-120.

Current.—The current in the passage between Amorgos Island and the Liadi Islets sets southeastward with a rate seldom less

than three-fourths of a knot. The rate increases with the strength of the northeasterly wind.

4-108 SOUTHEASTERN SIDE OF AMORGOS.—This side of the island lacks anchorages. The coast is high and precipitous, and the depths near it are great. During northerly winds strong squalls descend from the high land, and during the summer even the etesians blow with greater force on this side of the island.

4-109 Coast.—About $4\frac{1}{2}$ miles west-southwestward of Cape Prosino is the small bay of Sparti, open to the south-southeast, and close westward of Sparti Point, the western entrance point, is the larger bay of Khalara, open to the south. This latter bay has depths of less than 5 fathoms in its inner part and rocks close offshore, and close off its southwestern limit is the small islet of Exomia. About 1 mile southwestward of Exomia is Kapsala Point, the sides of which are precipitous.

At Panagia (Panayia), a 1,080-foot summit about midway along the southeastern coast of Amorgos Island, stands a conspicuous monastery, built at the mouth of a cavern on the face of a cliff. Close off the coast eastward of Panagia is the small rocky islet of Mikro Viokastro, and 1 mile southward of this islet and 400 yards off the coast with which it is connected by shallow water is the small rocky islet of Biokastro (Megalo Viokastro). From Biokastro the high and precipitous coast trends $1\frac{3}{4}$ miles southwestward to Cape Muru (Mouros), and 4 miles west-southwestward of Cape Muru is Cape Korax, the southernmost part of the island. Westward of Cape Korax the coast trends first westward and then northwestward for a total distance of 4 miles to Cape Kalotari, the western extremity of the island.

A light is exhibited from a hut with an iron framework obelisk, 20 feet high, on Cape Korax.

4-110 ISLANDS BETWEEN AMORGOS AND NAXOS.—Between the western point of the island of Amorgos and the southeastern coast of the island of Naxos, a distance of 13 miles, is a group of islands and islets, totaling twenty-three in all. The group occupies an area extending 15 miles in an east and west direction and 16 miles in a northeast and southwest direction. Only the larger islands are inhabited, that is, Karos, Apano-Kupho, Kato-Kupho, Echinos, and Heraklia.

The strait separating this group of islands from the southeastern coast of Naxos is described in section 4-146.

4-111 Antikaros (Andikaros) ($36^{\circ}50'$ N., $25^{\circ}42'$ E., *H. O. Chart 4140*), an islet 1 mile long in an east and west direction, lies $3\frac{1}{2}$ miles northwestward of the western point of the island of Amorgos. About one-third of a mile northward of this islet and joined to it by depths of 2 fathoms or less is a rock above water; depths of 5 fathoms are found close northward of this rock. A shoal patch of 7 fathoms is located about one-fourth of a mile northeastward of the rock. Elsewhere the water is deep near this precipitous islet, which has rocks close off its shores.

Drima (Dhrima), an islet similar in size to Antikaros, lies close westward of this same islet, to which it is joined by depths of 2 fathoms in the narrowest part of the channel separating them.

The channel separating these two islets from the western point of the island of Amorgos is deep and clear of dangers. At night vessels should keep to the northwestern part of this channel, as a small islet lies close northward of Gramvousa Islet.

4-112 Currents.—There is usually a current in the above-mentioned channel. During northeasterly winds it sets west-southwestward with a velocity of 2 knots, and

during westerly winds it sets east-northeastward with a velocity rarely exceeding 1 knot.

4-113 Karos, the island located $1\frac{3}{8}$ miles northward of the islets of Antikaros and Drima, is 4 miles long in an east and west direction and has a maximum width of 2 miles at its middle part. Along its coast, precipitous for the most part, the depths are great, but in places, especially off the southern coast, are small islets and rocks. A small settlement is located on the northwestern side of the island. Anchorage is not available at this island.

Gurgari (Gourgari), a small steep-to islet, lies close off the southeastern point of Karos. Andrea, another small steep-to islet, lies 400 yards off the middle of the southern coast of Karos, from which it is separated by deep water, but farther westward and 1 mile offshore is the small islet of Plaki. In the area between Andrea, Plaki, and Karos are four other islets, separated by narrow and deep channels. Scaglia (Skandhia) is the name of the small islet close off the western end of Karos, and off the northeastern coast of Karos is a small islet, about 400 yards offshore, and some sunken rocks.

The channel between Antikaros and Drima on the south and Karos on the north is deep. During poor visibility a vessel should steer to pass near the islet of Gurgari and the northwest part of Drima in order to avoid the islets off the southern coast of Karos and the small rock northward of Antikaros.

4-114 Apano-Kupho (Ano Koufo) and Kato-Kupho (Kato Koufo), two islands known together as Koufonisia, lie about midway between the island of Karos and the southeastern coast of the island of Naxos, which are separated from each other by a distance of 5 miles. These two islands are separated by a channel with a width of 200 yards and a least depth of 2 fathoms. Both islands are free of off-lying dangers, but within the 5-fathom curve, about 300

yards offshore, are rocks. The channel between the southeastern sides of these two islands and the island of Karos is $1\frac{1}{2}$ miles wide and deep, and vessels using it should keep to the southeastern part to avoid the islet of Glaro in the northwestern part.

Apano-Kupho, the northeastern island, is circular, the diameter being about $1\frac{1}{2}$ miles. A peninsula with secondary arms projecting northward and southward from it extends 800 yards eastward from the eastern side of the island. This peninsula forms on its southern side a small bay with depths of $2\frac{1}{2}$ fathoms in its inner part. A village is located on the southern side of the island. A light is shown on the point about $\frac{1}{2}$ mile northwestward of the village.

Kopria (Misos Prásoura), a small rocky islet, lies $2\frac{2}{3}$ miles northeastward of Apano-Kupho and $3\frac{1}{2}$ miles off the eastern coast of the island of Naxos.

A light is shown from a metal tower, 16 feet high, on the summit of Kopria.

Kato-Kupho, the southwestern island, extends $2\frac{3}{4}$ miles in a northeast and southwest direction and has an average width of one-half of a mile. Off the eastern coast, from which it is separated by a channel with a width of 700 yards and a least depth of 4 fathoms in midchannel, is the islet of Glaro.

4-115 Anchorage.—In the eastern approach to the channel separating Apano-Kupho from Kato-Kupho and northward of the islet of Glaro are depths of 7 to 6 fathoms, sand, where vessels may obtain temporary anchorage, sheltered from northerly winds but open to those from northeast to southeast. This anchorage is used by coastal steamers.

4-116 Echinosa (Skhoinousa) (Ekhinoussa), the island located $1\frac{1}{2}$ miles west-southwestward of the western point of Kato-Kupho, extends $2\frac{1}{2}$ miles in a north and south direction and has a maximum width of $1\frac{3}{8}$ miles in its northern part. Off the southern part of this irregular island are

several islets. On the highest peak are the ruins of a medieval tower. The inhabitants live in the villages of Messaras and Panayia.

The strait separating Echinosa from Kato-Kupho is deep and free from dangers except for a group of two small islets lying in its middle part. Vessels should keep to either side of the strait, preferably over to Kato-Kupho.

Ligari, a small rocky islet, is separated from the southeastern point of Echinosa by a channel with a width of 300 yards and a depth of 7 fathoms. First rocks above and below water and then depths of 5 fathoms extend as far as one-fourth of a mile eastward from this islet. Agrilos, an irregular islet extending 1 mile in a north and south direction, is separated from the southwestern point of Echinosa by a very narrow channel with a depth of $2\frac{1}{2}$ fathoms. This islet is surrounded by deep water except for a $2\frac{1}{2}$ -fathom rocky patch lying one-half of a mile southwestward of its northern point and one-fourth of a mile off its western coast. Ophidusa (Ofidousa), a much smaller islet, is separated from the southern end of Agrilos by a deep channel with a width of 400 yards. Deep water also surrounds this islet except for some sunken rocks extending 100 yards from its northern end.

4-117 Myrsini (Mersinia) Bay, located two-thirds of a mile southeastward of Sphungaki (Sfungaki) Point, the westernmost point of Echinosa, is a small bay open to the southward. The depths are 12 fathoms in the outer part and 6 fathoms in the inner part. Coastal steamers call.

Psiliamo (Psili Ammos) Bay, a very small bay on the eastern side of Echinosa in a position 1 mile south of Psili Point, the northern extremity of the island, is suitable only for small local craft. The island has four other but rather open bays formed by two peninsulas each extending about 1,200

yards from both the eastern and western sides of its southern part. They can be used only for temporary refuge according to the direction of the wind and then only in case of necessity. The only danger is a sunken rock lying about 150 yards southward of the northern entrance point of the northwestern bay.

4-118 Heraklia (Iraklia), located $1\frac{1}{8}$ miles westward of Echinosa, from which it is separated by a deep strait, is the westernmost and largest island of the group between the islands of Amorgos and Naxos. The island extends 4 miles in a northeasterly and southwesterly direction and has a maximum width of 2 miles at its middle part. Papas, the highest summit of this hilly island, is on the southern side and descends almost perpendicularly to the sea. Parts of the island are cultivated, the products being grain, vegetables, and tobacco. Some cattle are also raised. The inhabitants, numbering about 270, live in three villages, Ayios Yeoryios, at the bay of the same name, Panayia, along the foothills of Papas, and Ayios Athanasios, at the Western end of the island.

Ayios Yeoryios Bay, open to the north, indents the eastern coast immediately southward of the northernmost point of the island. It has depths of 8 to 3 fathoms, and is clear of dangers. Coastal steamers call here, but sometimes during the winter they are unable to enter.

Murto (Mourto) Bay, entered one-half of a mile southward of Ayios Yeoryios, recedes southwestward and has depths of 3 to 2 fathoms in its inner part. Venetiko, a small rocky islet, lies 400 yards northeastward of the southern entrance point, from which it is separated by deep water. About 1 mile southward of Murto Bay is Pegadi (Pigadhi) Bay. Sheltered from all but easterly winds, this small bay with a depth of

9 fathoms in its middle part affords refuge only to small craft.

The southern coast of Heraklia is high and precipitous. The depths are great, but near the shore are rocks. The western limit of this side of the island is Alimnia Point, and one-third of a mile northwestward of it is Alimnias Bay. Open to the southwest, this small bay has depths of 9 to 4 fathoms and is clear of dangers but for the rock close northward of the southern entrance point.

The northwestern coast of Heraklia presents nothing of interest. The western part is indented by Vourkaria Bay, open to the north and having great depths. Spilia Cove, a small narrow inlet located $1\frac{1}{3}$ miles southwestward of the northern point of the island, has depths of 5 fathoms and is clear of dangers. It would afford shelter to small craft from almost all winds.

4-119 Avelas Islets, two in number, lie off the western end of the island of Heraklia. The inner islet is separated from the island by a deep channel with a width of 300 yards, while Avelos (Avelas) Rock, the outer one is 1,700 yards farther westward.

A light is exhibited from a white iron tower on the summit of Avelos Rock.

A depth of 7 fathoms was reported (1955) about 10 miles southwestward of the light.

4-120 ISLANDS EASTWARD OF NAXOS.—Makariæ (Makares) (Makaria) Isles ($37^{\circ}05' N.$, $25^{\circ}43' E.$, *H. O. Chart 4140*), located $3\frac{3}{4}$ miles eastward of Cape Mutsoma, the easternmost point of the island of Naxos, are a group of three uninhabited rocky islets. The group is surrounded by deep water.

St. Nikolo (Ayios Nikolaos) and Prasini, the northern and the middle islet, respectively, are almost joined, being separated by a very narrow channel with a depth of only 1 fathom. Strongylo (Strongili), the southernmost islet, lies one-fourth of a mile southward of Prasini, from which it is separated

by deep water. A rock with less than 6 feet of water over it lies immediately southward of the southern point of Strongylo.

A small bank with a depth of 16 fathoms is located two-thirds of a mile south-southwestward of the western extremity of St. Nikolo.

4-121 Denusa (Dhenousa) (Donusa) Island (*summit, $37^{\circ}07' N.$, $25^{\circ}50' E.$, *H. O. Chart 4153**), located 4 miles east-northeastward of the Makariæ Isles, is an irregular-shaped mountainous island having a length of 3 miles and a height of about 1,604 feet. The coast, precipitous for the most part, is indented by deep but rather open bays, and the depths are considerable except for some rocks near the shore in places. The inhabitants number about 250. Coastal steamers call at either the bays on the southern side or Rusa Bay, according to the weather.

Rusa (Roussa) Bay, located close southward of Cape Kalota (Kaloterousa), the northeastern point of the island, indents the northern half of the eastern coast of Denusa Island. Trigono (Skilo), an islet, lies in the northern part of the bay, and shelters the head, where the depths are 7 to 3 fathoms, from northeasterly winds. The islet is connected to the northeastern shore by depths of 4 fathoms, and a rocky reef extends about 400 yards southwestward from the western extremity of the islet. Moskonar (Moskhonari) Point, the southern entrance point of the bay, is also the easternmost point of the island.

A light is shown on Cape Kalota.

4-122 The southern side of Denusa Island has three small bays. Mataio Bay, the first one westward of Glaros Point, the southeastern point of the island, has great depths at its inner part and rocks along its eastern shore. Chendro (Dhendron) Bay, the middle one, recedes one-half of a mile northward to the sandy beach at its head, where, on the western side of a stream, is

a small settlement with a conspicuous white chapel. Sheltered from northerly winds, small vessels can obtain anchorage in a depth of 5 fathoms close off the head, as farther out the depths become considerable. Shallows with rocks extend 200 yards from Chendro (Dhendron) Point, which is the western entrance point of the bay as well as the southwestern point of the island. Between Chendro Bay and that of Mataio is a small inlet, called Pirate Cove. Stavros Bay, located close north-northwestward of Chendro Point, has shoal depths at its inner part and a sandy beach at its head.

Aspron Point is the northwestern point of Denusa Island, and eastward of this point is a large bay, with a small rocky islet close off its eastern shore. The great depths make this bay unsuitable for anchorage. About 400 yards northward of the eastern entrance point lies a patch of rocks.

4-123 Melandioi (Buey) Rock ($37^{\circ}14' N. 25^{\circ}56' E.$, *B. A. Chart 2682*) lies in an isolated position about $7\frac{1}{2}$ miles northeastward of Denusa Island. The rock is steep and narrow, about 164 feet high, and is nearly divided into two parts at about one-third its length from the eastern extremity. On the summit of the other extremity is a cairn. Besides being surrounded by a narrow bank, rocks above and below water extend 100 yards eastward from this high rock, but elsewhere at a distance of 200 yards the depths are considerable. This rock constitutes a danger only at night. Melandioi Rock is reported to lie about 800 yards 120° from its charted position.

A light is exhibited from an iron lattice obelisk, 19 feet high, on Melandioi Rock.

A bank with depths of 22 to 98 fathoms extends about 5 miles eastward from a position about 3 miles southeastward of Melandioi Rock. This bank has not been completely examined.

4-124 NAXOS (*H. O. Chart 4140*), the largest island of the Cyclades, lies 13 miles northwestward of Amorgos and eastward of Paros, from which it is separated by a channel $2\frac{3}{4}$ miles wide in its narrowest part. The group of smaller islands between Amorgos and Naxos has already been described in section 4-110. This large island extends 18 miles in a north and south direction and has an extreme width of $13\frac{1}{2}$ miles in its middle part. A mountain range extends the length of the island, and the two highest summits of this range are Mt. Zia (Zeus), 3,290 feet high, located $7\frac{1}{2}$ miles north-northeastward of the southern extremity of the island, and Mt. Korono, 3,250 feet high, located 5 miles southward of the northern extremity of the island. As a rule the depths off the island are considerable.

The northwestern and eastern coasts present no dangers, but vessels bound for anchorages along the southwestern and southeastern coasts must exercise caution, as off-lying dangers exist, especially in the narrow part of the channel separating Naxos from Paros. Good anchorages, sheltered from northerly and easterly winds, are available along the southwestern and southeastern coasts. Besides these, Naxia Bay, on the northwestern side, can be used during southerly and easterly winds, and Mutsoma Bay, on the eastern side, during northwesterly winds.

The soil of the island is fertile and well cultivated, producing considerable quantities of olives, grain, fruit, vegetables, and tobacco. The raising of cattle is also well developed. Another important product is emery, of which there are rich beds in the northeastern part of the island; here are also some marble quarries. The population approaches 20,000 inhabitants, who are scattered in different villages in the northern and central parts of the island. Naxia, the

capital town, is connected by highway with the important villages in the interior. Coastal steamers call at several places on this island.

4-125 NORTHWESTERN SIDE OF NAXOS.—Procopi (Prokopis) Point ($37^{\circ}04' N.$, $25^{\circ}21' E.$, *H. O. Chart 4140*), the westernmost extremity of Naxos, is the southwestern point of a peninsula extending 1 mile in a west-northwesterly direction from the southern end of the northwestern coast. Southward of this peninsula is Procopi Bay, described in section 4-140. The point is steep-to, the 3-fathom curve being a short distance offshore. Inland of this point rise small hills.

Mungri (Moungri) Point (*plan on H. O. Chart 4141*), the northwestern point of the above-mentioned peninsula, as well as the southwestern entrance point of Naxia Bay, is located 1 mile north-northeastward of Procopi Point. The 5-fathom curve is as far as $\frac{1}{4}$ mile off the intervening coast between these two points, and depths of less than 3 fathoms with rocks above and below water extend about 200 yards northward from Mungri Point. The sides of Mungri Point are precipitous, and 800 yards southward of the point rises Mt. Strongilo, 500 feet high.

Phrouros (Frouros) Rocks, a patch of three rocks awash, lie in the approach to Naxia Bay about $\frac{1}{3}$ mile northward from Mungri Point, from which they are separated by depths of 8 to 10 fathoms. A 3-fathom and a $2\frac{1}{4}$ -fathom rocky patch lie less than $\frac{1}{4}$ mile north-northwestward of these rocks, which also have close west-northwestward of them a $1\frac{1}{4}$ -fathom rocky patch.

4-126 Naxia Bay (Ormos Naxou) (*plan on H. O. Chart 4141*), located between Mungri Point on the southwest and Bacchus

(Vakkhos) Islet on the northeast, is a semi-circular bay having a width of $1\frac{1}{2}$ miles in its entrance. In the northeastern part of the bay is the town of Naxia, with its harbor. Beyond Mungri Point the southern shore is low, and rocks lie as far as 250 yards offshore. On this side of the bay is a large fishery, and the land eastward of it is an extensive plain. Beyond the fishery the shore turns gradually northward, and the 3-fathom curve is about $\frac{1}{4}$ mile offshore up to the southern limit of Naxia Harbor.

4-127 Naxia (Naxos) Harbor is that part of Naxia Bay between Bacchus Islet and a point projecting from the eastern shore in a position one-half mile southward of the islet. The church of St. Georgio (Ayios Yeoryios) stands within the projecting point, and on the islet are the conspicuous remains of an ancient temple, consisting of two marble slabs standing erect and one laid across the top of them. A small breakwater connects Bacchus Islet with the northern end of the town, and the main breakwater extends 450 yards southwestward from the islet. A much shorter breakwater extends northwestward from the point fronting the church of Saint Georgio. A conspicuous mast stands at the root of the breakwater, and a conspicuous belfry is located on the eastern side of the town. Immediately within the lee of the main breakwater is a small area with depths of 29 to 23 feet and depths of less than 16 feet extend 200 yards off the eastern shore of the harbor. About 250 yards southeastward of the breakwater, a pier, with accommodations alongside its head for a vessel about 260 feet long, extends southwestward from the shore for about 300 yards; an arm extends a short distance southeastward from a position about 100 yards from the head of the pier. Between this pier and a pier at the middle part of the town is a small islet having a church on it.

A light is shown from the head of the main breakwater extending southwestward from Bacchus Islet.

A dangerous wreck, with mast showing, is about $\frac{1}{4}$ mile east-southeastward of the head of the main breakwater.

4-128 Anchorage.—Small craft can approach the shore in front of the town and be protected by the main breakwater to the north of them. For large vessels, however, the best anchorage is one-half of a mile westward of the town in depths of 7 to 6 fathoms, sand and weeds; farther westward the depths increase somewhat rapidly. A mooring buoy is positioned about 200 yards northward of the main breakwater head. A swell usually sets into Naxia Bay, and this anchorage is not considered as safe as that in Procopi Bay.

4-129 Naxia (Naxos) (*37°06' N., 25°23' E., H. O. Chart 4141*), the capital of the island of Naxos, is conspicuous, being built like an amphitheatre upon a small hill and having narrow and irregular streets. It is connected by a network of highways with the inland villages, and automobile service is available to the more important ones. South of the town is an extensive plain (1,500 acres), which produces potatoes principally and tobacco of choice quality. The climate is damp but healthy. The population numbers about 2,200.

Berths.—The pier, which is located close eastward of the main breakwater, is about 650 feet long. Depths at the head of the pier range from 3 to 10 feet, and along the southern side from 2 to 9 feet. A boat pier, about 160 feet long, extends offshore in front of the town.

Untreated water is available in moderate quantities, but there are no facilities for supplying ships. Provisions are available. Gasoline and fuel oil are available in limited quantities.

The town has telegraphic, customs, and postal facilities. Being the principal port for the island, it is visited regularly by coastal steamers.

4-130 Coast (*H. O. Chart 4140*).—From Naxia Bay to Cape Stauro (Stavros), a distance of 10 miles, the remainder of the northwestern coast presents nothing of interest, being precipitous for the most part and uninhabited. The 3-fathom curve is nowhere more than 300 yards offshore.

Akapsi (Akhapsi) Point is located $2\frac{1}{2}$ miles northeastward of Naxia Bay, and one-half of a mile southwestward of the point is a small rocky islet separated from the coast by a narrow and foul channel. Between Akapsi Point and Mama Point, $3\frac{3}{4}$ miles northeastward, the coast forms a slight bight with depths under 16 fathoms. North of Mama Point the coast proceeds $1\frac{1}{2}$ miles northeastward to Cape Emeliano (Aimili-

anos), where it turns east-northeastward and trends $2\frac{1}{2}$ miles to Cape Stauro, the northern extremity of the island. Immediately south of Mama Point is Mama Bay, and likewise south of Cape Emeliano is that of St. Theodoro (Ayios Theodoros). Open to the west, both of these two small bays have a sand beach at the head and are suitable only for small craft. Skera (Skira) Cove, located 1 mile west-southwestward of Cape Stauro, can be used by boats as a refuge from almost all winds.

A light is shown on Cape Stauro.

4-131 EASTERN AND SOUTHEASTERN SIDES OF NAXOS.—**Apollona Bay** (*37°11' N., 25°34' E., H. O. Chart 4140*), entered $1\frac{1}{2}$ miles south-southeastward of Cape Stauro, is open to the north and affords good shelter from southeasterly winds. The inner part of the bay is divided into two parts by a peninsula projecting 400 yards north-northeastward from the shore. At this bay are some old marble quarries and a small settlement, which serves as the port for the inland village of Komiaki (Koronis). Coastal steamers call, but these sometimes cannot enter during either the northerly and easterly winds of winter or the etesians of summer.

4-132 Leonda (Liona) Bay is located 3 miles south-southeastward of Apollona Bay, the intervening uninhabited coast between them being precipitous and steep-to. Open to the east and north and also having a high precipitous shore, the bay has depths of 8 to 6 fathoms. This bay, as well as that of Mutsoma, is used for loading emery brought down from the mines to a pier by a cable conveyor. An anchor has been buried near the pier for mooring, and the rocks on the northern side of the bay can be used for the same purpose.

Coastal steamers call at Leonda Bay. Anchorage is good but dangerous during bad weather. The winds can blow violently, changing direction without warning. Often vessels cannot enter this bay during the

winter and even sometimes during the summer when the etesians are blowing.

4-133 Cape Mutsoma (Moutsouna), located $3\frac{1}{2}$ miles southward of Leonda Bay, is the easternmost point of the island of Naxos. This cape is the extremity of a peninsula extending three-fourths of a mile eastward from the general trend of the coast, and close eastward of this cape lies a small rocky islet with rocks close seaward of it. The Makarice Isles (sec. 4-120) lie $3\frac{1}{2}$ miles eastward of the cape.

4-134 Mutsoma (Moutsouna) (Mutsuna) Bay, located on the southern side of the peninsula terminating in Cape Mutsoma, affords anchorage during offshore winds. The small settlement here serves as the landing place for the inland town of Aparanthea (Apiranthos). Emery is brought from the mines to a small jetty by a cable conveyor. Coastal steamers call, but seldom put in during the winter, especially during southerly and southeasterly winds which blow then.

When loading emery, vessels with a draft of less than 22 feet moor with their stern off the small jetty, and load from lighters. It is impossible to load with either onshore winds or a swell; even northerly winds make loading difficult. There are shoals on both sides of the berth, and a vessel should be ready to leave at a moment's notice. A vessel should approach the bay on a northwesterly course, keeping a conspicuous white house half way up a hill in range with the largest white house to the left of the jetty, and anchor northward of the jetty in such a position that the anchor chains can be veered so the stern is 75 yards offshore, stern lines being run to bollards on the shore.

In August 1937 the steamer *Exporter* dropped two anchors in a depth of 15 fathoms, sand and rock, and ran two stern lines to the bollards on the rocky beach. Veering

the anchor chains and heaving in on the stern lines, the vessel was secured when the stern was in a depth of 6 fathoms; the distance to the shore then was 600 feet.

4-135 Coast.—From Mutsoma Bay the southern part of the eastern coast of Naxos trends 8 miles south-southwestward almost in a straight line to Cape Panermo (Panormos), the southeastern point of the island. Having great depths near it, and being free from dangers, this coast is indented by two small bays, Hypsiliamos (Psili Ammos) Bay and Klitho (Klidho) Bay. As both bays have depths of less than 5 fathoms and are open to the east, they are suitable only for small craft.

The southeastern coast of Naxos is 5 miles long between Cape Panermo and Cape Katomeri, the southernmost extremity of the island. Indented by several small bays, this bold and steep-to coast is free from dangers except for Delo Rocks.

Panermo (Panormos) Bay, located one-third of a mile westward of Cape Panermo, has depths of 7 fathoms in the inner part and 8 fathoms in the northeastern arm. It is open to southerly and southwesterly winds, but affords temporary shelter to small craft from all the other winds.

Delo (Dhilos) Rocks lie in the southwestern approach to Panermo Bay in a position about one-half of a mile southwest of the western entrance point to this bay. On this dangerous shoal are two rocks with depths of less than 6 feet, lying 400 yards apart in a north-northwesterly and south-southeasterly direction. The outer end of this shoal is 1,300 yards offshore, and between the inner end and the shore, a distance of about 600 yards, are depths of 17 to 6 fathoms.

Kalandi Bay, entered $1\frac{1}{4}$ miles northeastward of Cape Katomeri, is open to the south. Having shores clear of dangers, this

bay has depths of 18 to 8 fathoms, the 3-fathom curve being 200 yards off its head. Sheltered from northerly winds, the best anchorage is in 10 fathoms, sand, about 500 yards off the head.

4-136 Strait—Currents.—The strait between the southeastern coast of the island of Naxos and the large group of islands (sec. 4-110) off this coast has a minimum width of 2 miles and deep water. The navigation of this strait is easy, and Delos Rocks, the only danger, is avoided by keeping outside of a line between Cape Katomeri and Cape Panerno.

During calms or northeasterly winds the current in this strait sets southwestward and southward with a velocity of $1\frac{1}{2}$ knots; during westerly winds it sets northeastward and northward with a velocity of 1 knot.

4-137 SOUTHWESTERN SIDE OF NAXOS—Coast—Dangers.—Cape Moni ($36^{\circ} 56' N.$, $25^{\circ} 26' E.$, *H. O. Chart 4140*) lies $1\frac{1}{2}$ miles northwestward of Cape Katomeri, the southernmost point of the island, and about midway these two capes is Gaitani Point. The bay between Gaitani Point and Cape Moni is clear of dangers, but the depths are too great for anchoring.

A shoal with a depth of $2\frac{1}{4}$ fathoms lies three-fourths of a mile westward of Gaitani Point.

Between Cape Moni and Kurupa (Kouroupa) Point, about 3 miles northwestward, the coast forms a bight. On the latter point stands a chapel. In the middle of this bight in a position $1\frac{1}{2}$ miles north-northwestward of Cape Moni and three-fourths of a mile westward of the eastern shore is Black Rock (Mavros Vrakhos), from which shoal water extends about 100 yards in all directions.

Two anchorages are available along the northern side of the above-mentioned bight. Ai Yiannis, the bay eastward of Kurupa

Point, has depths of less than 5 fathoms 400 yards offshore, but 700 yards offshore are 9 fathoms, sand and weeds, where anchorage can be taken, sheltered from northerly winds. The other anchorage, called Potamidha Anchorage, is formed where the shore of the bight turns westward; the 5-fathom curve is 600 yards off the eastern shore and 400 yards off the northern shore. Sheltered from northerly and easterly winds, the best berth is in 8 to 6 fathoms about 500 yards off the northern shore.

Ioannis (Ai Yiannis) Point, located three-fourths of a mile northward of Kurupa Point, has a rocky shoal extending 600 yards northwestward from it; the depth is $1\frac{1}{2}$ fathoms on the extremity of this shoal. The small bay eastward of the point has a depth of 3 fathoms in its inner part. From this bay the coast trends 1 mile north-northwestward to Kastraghi Point, and $1\frac{1}{2}$ miles farther north-northwestward is Cape Parthenos. Along this coast the 5-fathom curve is as far as 700 yards offshore.

4-138 Cape Parthenos, projecting from the neighboring low coast, has depths of less than 5 fathoms extending 700 yards north-westward from it. A short distance within these depths lies a small rocky islet, having a sunken rock 200 yards westward of it. Two more rocky islets, located close to each other, lie 800 yards westward of the cape. Northward of the cape the coast forms a bight, the low shore of which first trends 1 mile northeastward and then proceeds 2 miles northwestward to the southeast limit of Procopi Bay, where stands the church of St. Nikolaos. Isolated rocks, above and below water, lie within the 5-fathom curve, which is as far as one-half of a mile offshore in places.

4-139 Aspro Rock, 50 feet high, lies off the middle part of the above-mentioned bight in a position about three-fourths of a

mile offshore. This rock rises from the middle part of a 3-fathom rocky shoal extending 650 yards in an east and west direction. Laro Rocks, a group of above-water and sunken rocks, lie from 400 to 600 yards southeastward of Aspro Rock, from which they are separated by depths of 8 fathoms. Between Laro Rocks and Aspro Rock on the southwest and the 5-fathom curve of the bight on the northeast is a narrow channel having a width of 300 yards and a depth of 6 fathoms.

4-140 Procopi (Ayios Prokopios) Bay ($37^{\circ}04' N.$, $25^{\circ}21' E.$, *H. O. Chart 4140*) is $1\frac{1}{4}$ miles wide in its entrance between the church of St. Nikolaos on the southeast and Procopi Point (sec. 4-125) on the northwest. Being open only to southerly and southwesterly winds, this bay affords good anchorage during northerly and easterly winds, and for this reason is used by vessels unable to put into Naxia Bay during northerly winds. The 5-fathom curve is 600 yards off the eastern shore and 200 yards off the northern shore. Within the 5-fathom curve and in a position 600 yards southwestward of the point at St. Nikolaos Church is a rock with a depth of less than 6 feet, and outside this curve and in position one-half of a mile west-southwestward of this same point lies a 4-fathom rocky patch. Outside the 5-fathom curve on the northern side of the bay are two other shoals, a $4\frac{3}{4}$ -fathom shoal lying 500 yards south-southeastward, and a 5-fathom rocky patch lying 700 yards south-southeastward, of Procopi Point.

4-141 Off-lying dangers.—Amaridi (Amaridhes) Rocks, located in the southwestern approach to Procopi Bay in a position nearly in the middle of the channel between the island of Naxos and that of Paros, are above and below water, and extend, together with the surrounding shal-

lows, one-half of a mile in a north-northeasterly and south-southwesterly direction. These rocks are seen from some distance by day, and at times the sea breaks heavily on them.

A light is shown on Amaridi Rocks.

A 7-fathom rocky patch lies one-half of a mile south-southwestward of the Amaridi Rocks.

Chapman Rock, over which the depth is less than 6 feet, lies in the southwestern approach to Procopi Bay in a position 1,300 yards southwestward of Procopi Point.

4-142 Anchorage—Directions.—Vessels can anchor in Procopi Bay in a depth of 7 to 6 fathoms, sand and weeds, about 500 yards off the northern shore. Vessels should use the lead when approaching the anchorage.

At night the approach to Procopi Bay should be made in the green sector of the light on Krazi Point of Paros in order to avoid Amaridi Rocks and Chapman Rock. During the day the approach can be made by keeping the same light structure bearing between 250° and 260° , astern, or by the position of Amaridi Rocks, which should be given a berth of 800 to 1,200 yards.

Vessels using the strait between the islands of Naxos and Paros should keep Paros aboard to avoid Amaridi Rocks and Chapman Rock.

Currents.—During northeasterly winds or calms the current in the strait between the islands of Naxos and Paros sets southward with a rate of $1\frac{1}{2}$ knots, but with westerly winds it sets northward with a rate of 1 knot.

4-143 PAROS (*H. O. Chart 4140*), the large island located westward of the island of Naxos, from which it is separated by a strait having a minimum width of $2\frac{3}{4}$ miles,

occupies the most central position in the Cyclades, and is the third in size, the islands of Naxos and Andros being larger. Extending 13 miles in a north-northeasterly and south-southwesterly direction and having a maximum width of 8 miles in its middle part, the island appears like a round mountain with two peaks, which are three-fourths of a mile apart; Mt. St. Elias (Ayios Ilias), the northwestern peak, is 2,533 feet high, and Mt. Koromboli, the southeastern one, is 2,450 feet high. The land from these elevations slopes gradually down to the cultivated plains below, which are mainly at the northeastern and southwestern ends of the island.

The coast is rather irregular, forming a number of very safe anchorages for refuge from all weather without exception. The depths off the coast are great, but islets, rocks, and reefs lie off the northeastern end, the southeastern side, and the western side; also off the western side is the large island of Antiparos, beyond which are the islets of Despotiko and Strongylo. For these reasons great caution is required when navigating in the vicinity of the island of Paros.

The level areas are well cultivated and produce grain, grapes, tobacco, and other products. The cattle industry is also well developed. On the island are some quarries of choice marble. The inhabitants, numbering about 9,300, live in the capital town of Paroekia and several other important villages, all connected by second-rate roads.

4-144 SOUTHEASTERN AND EASTERN SIDES OF PAROS.—Cape Mauro (Mavros) ($36^{\circ}58' N.$, $25^{\circ}12' E.$, *H. O. Chart 4140*), the southern limit of the island of Paros, is precipitous and clear of dangers, although close eastward of the cape depths of less than 5 fathoms extend 300 yards offshore. Northeast of the cape the coast trends $2\frac{1}{4}$ miles to Port Trio, and about

midway along this coast is a small bay open to the southeast. Depths of less than 5 fathoms extend as far as one-third of a mile from the head of this bay, and extending 350 yards southward from the northeastern entrance point are rocks above and below water.

4-145 Port Trio ($37^{\circ}00' N.$, $25^{\circ}15' E.$, *plan on H. O. Chart 4141*), a slight bight having an extent of $1\frac{3}{4}$ miles between Cape Pyrgo (Pirgos) to the southwest and Cape Khiuni (Khioni) to the northeast, is fronted to the southeast by Trio Island and to the east by the islets of Makro and Praso. The 3-fathom curve is 250 yards off the shore of this bight, and projecting a short distance eastward from the middle part of the bight is Trio Point. The land is well cultivated, and a small settlement is located within Trio Point. Water can be obtained from pipes at Trio Point, but the point is fringed by rocks, making it difficult for boat work, especially during southerly and southeasterly winds that raise a sea.

Trio Island, located three-fourths of a mile eastward of Cape Pyrgo, is low and uninhabited. The depths are great off its eastern coast, but rocky shallows of $1\frac{1}{4}$ fathoms extend 250 yards southward from the middle part of its southern coast. Rocks above and below water lie as far as 150 yards southward from the western extremity of the island, and along the northwestern coast of the island the depths are less than 3 fathoms as far as 100 yards offshore.

Makro Islet, extending 600 yards in a north and south direction, lies with its northern extremity about 1,200 yards eastward of Cape Khiuni, from which it is separated by depths of more than 8 fathoms. This narrow islet has shallows of less than 3 fathoms extending 200 yards southward from its southern extremity, and similar depths with two large rocks above water extend 300

yards northward from its northern extremity. Except for the shallows at the southern extremity of Makro Islet, the channel between this islet and Trio Island to the southwest of it is deep and clear of dangers.

Praso Islet, located one-third of a mile northward of Makro Islet and about the same distance off the coast of Paros, has depths of less than 5 fathoms extending as far as 120 yards from it. The channel between the islets of Praso and Makro has a depth of 7 fathoms for only 150 yards of its width, the axis of the fairway being 200 yards south of Praso. The use of this channel is not recommended.

Port Trio affords good anchorage during the summer, but it is unsafe during the winter, being exposed to southerly and northeasterly winds, which cause a considerable swell. Vessels can anchor where convenient, but the best berth is in 8 fathoms, sand and weeds, about midway between the northwestern coast of Trio Island and Trio Point.

4-146 Tsimbidho Bay ($37^{\circ}02' N.$, $25^{\circ}16' E.$, *H. O. Chart 4140*), open to the southeast, is the small bay located $1\frac{1}{2}$ miles northeastward of the northeast limit of Port Trio. The southwestern limit, on which rises a 56-foot hill, has depths of less than 5 fathoms extending 400 yards eastward and 600 yards southeastward from it. A short and narrow tongue of land extending 150 yards southward forms the northeastern limit of the bay. Dangerous shallows extend 100 yards eastward and 300 yards southeastward from this tongue. At the northern part of the bay is a small settlement with a wharf for boats. This settlement is the landing place for the inland village of Khipedo (Tsimbidho) and coastal steamers occasionally call.

As Tsimbidho Bay recedes only slightly and the 5-fathom curve is 300 yards offshore in most places, the best anchoring berth,

affording only limited safety from northwesterly winds, is in a depth of $6\frac{1}{2}$ fathoms, sand, 350 yards south-southwestward of the northeast limit of the bay.

4-147 Krazi (Kratzi) Point, located $1\frac{1}{4}$ miles northeastward of Tsimbidho Bay, is the extremity of a peninsula that extends one-half of a mile eastward from the mainland and has a width of 300 yards and a height of 125 feet. The 5-fathom curve is only a short distance off Krazi Point.

A light is exhibited from a white iron tower on a concrete base, the whole 10 feet high, at Krazi Point.

4-148 Marmora (Marmara) Bay is entered northward of Krazi Point, which constitutes its southern entrance point. Staphida (Kefalos) Point, the northern entrance point located two-thirds of a mile northward of Krazi Point, is clear of dangers, and has northwestward of it land rising to a height of 574 feet. The bay recedes westward for 1,200 yards to the sandy beach at its head, where the 3-fathom curve is 300 yards offshore. At the northern end of the head is a small settlement, the landing place for the inland village of Marmora (Marmara), where marble is quarried.

Marmora Bay affords good anchorage sheltered from westerly winds. The best berth is in the middle of the bay in a depth of $4\frac{1}{4}$ fathoms, sand, about 600 yards off the sandy beach at the head. Vessels whose draft permits them to occupy the recommended berth are also partially sheltered from northerly and southerly winds.

4-149 Coast.—Northward of Marmora Bay the eastern coast of Paros recedes slightly to the westward to form a wide bight. Limiting this bight to the north is Phillenghi Islet, located 4 miles north-northeastward of Staphida Point, and about

midway along this bight is Sito Point. The 5-fathom curve is 400 yards offshore in most places. The land in this vicinity is the most fertile in Paros.

4-150 Phillenghi Bay (Ormos Filizi) ($37^{\circ}08'N.$, $25^{\circ}18'E.$, *H.O. Chart 4141*), located close southward of the northeastern extremity of Paros, is three-fourths of a mile wide in its entrance between Phillenghi (Filizi) Islet on the south and Santa Maria Point on the north, and recedes about the same distance in a westerly direction. The depths in the outer part of the bay range from 13 to 8 fathoms, decreasing gradually to the 3-fathom curve at a distance of 200 yards off the shore in most places. The bottom is sand and weeds near the shore, and only sand farther off. This bay would afford shelter from northwesterly winds principally, but it is not used for anchorage on account of its proximity to Port Naussa. A dangerous wreck with a depth of about 5 fathoms over it is located in the northwestern part of Phillenghi Bay.

4-151 Coast—Islets.—The northeastern part of Paros terminates in a peninsula having a T-shape. Having Phillenghi Bay on the eastern side and Langeri Bay on the western side, the low and narrow part of this peninsula first trends northward and then widens out to a width of $1\frac{2}{3}$ miles in an east and west direction. This peninsula attains its maximum height of 216 feet about midway along its northern coast. Vessels should give this same coast a berth of 1 mile on account of the islets lying off it. Except for Hebreo Islet, the westernmost one, these islets are steep-to on their northern and eastern sides.

4-152 Turko (Ovriokastro) Islet, 108 feet high, lies 800 yards north-northeastward of Agria (Grias) Point, from which it is separated by great depths. Agria Point, the northeastern extremity of the above-mentioned peninsula, has a very small islet close

off its eastern side and another similar islet about 150 yards northeastward of it. This latter islet, named Kournos, has rocks and shallows extending 100 yards eastward from it. Immediately west of Agria Point is a small bay open to the north. Shallows extend one-half of a mile north-northeastward from the northwest limit of this bay, and on these shallows abreast of Turko Islet is Fonisses Islet, with two much smaller islets and rocks on the shallows south-southwestward of it. The least depth in midchannel between Fonisses Islet and Turko Islet is $3\frac{1}{4}$ fathoms. Shallows of less than 1 fathom extend also 300 yards east-northeastward from the northern point of the peninsula located 800 yards westward of Fonisses Islet.

4-153 Eremo (Tourlites) Islets, the northernmost of the islets lying off the northern coast of the northeastern part of Paros, are a group of four small islets located three-fourths of a mile northwestward of Turko Islet. The largest and easternmost islet has a height of 75 feet. The group is surrounded by shoal water extending offshore as far as 150 yards on the southern side. Southward from this group to Paros, a distance of one-half of a mile, are general depths of 10 to 6 fathoms, but a rocky patch with a least depth of $4\frac{1}{4}$ fathoms lies 500 yards off Paros.

Hebreo (Gaidhouri) Islet, 121 feet high, lies 600 yards west-southwestward of Eremo Islets, from which it is separated by great depths. Depths of less than 6 feet extend 100 yards northward from its northeastern point. The southern side of Hebreo Islet is separated from Cape Turko (Tza-Kamaki), the eastern entrance point of Port Naussa, by a channel having a width of 500 yards. The channel has depths of 12 to 9 fathoms on the Hebreo side, and a rocky shoal of $2\frac{3}{4}$ fathoms extends 250 yards north-northeastward from Cape Turko.

The coast of Paros eastward of Cape Turko is indented by a bay open to the north. This bay has slight depths in its inner part and is unsuitable for anchorage. About 300 yards northeastward of the eastern entrance point of this bay is a rocky patch having less than 6 feet of water over it.

4-154 PORT NAUSSA (ORMOS NAOUSIS) ($37^{\circ}08' N.$, $25^{\circ}15' E.$, *plan on H. O. Chart 4141*), the large bay indenting the greater part of the northern side of the island of Paros, is one of the best, largest, and safest anchorages in the Cyclades, capable of accommodating a large number of vessels. The entrance commencing between Cape Turko on the east and Cape Korax on the west trends 1 mile southward and has a minimum width of 1 mile. Inside this large entrance the bay widens out in an east and west direction to form secondary bays, where shelter can be obtained from all winds. Two of these secondary bays have islets in them. Navigation through the entrance and up to the town of Naussa is simple, but great caution is required on the part of those putting into the anchorages in the secondary bays, where dangers exist.

4-155 Cape Korax (Korakas), the western entrance point of the bay, as well as the northernmost point of the island of Paros, is the northern extremity of an irregular peninsula, 213 feet high, connected to the mainland by a narrow isthmus. From this cape, which is steep-to and precipitous, the precipitous western shore of the entrance trends first 1,600 yards southeastward to Diplo (Almiros) Point and then 700 yards southward to Tourkos Point, the eastern entrance point of the secondary bay of Yanni. Nowhere is the 3-fathom curve more than 150 yards offshore.

A light is exhibited from a square tower on a dwelling, the whole 32 feet high, on Cape Korax.

4-156 Langeri Bay, entered southward of the precipitous eastern shore of the entrance to Port Naussa, recedes 1,200 yards in an easterly direction. The northern shore is precipitous, but the eastern shore is low and backed by cultivated land. Nowhere is the 3-fathom curve more than 200 yards offshore.

Mavro Islet, forming the southern limit of the western entrance to Langeri Bay, lies 700 yards south-southwestward of the northern entrance point. Shallows extend 60 yards from this islet, made up of two parts connected by a narrow neck. About midway in the entrance lies a 1-fathom rocky patch. To avoid this patch, it is recommended to round the northern entrance point at a distance of 150 yards, where the depths are 6 fathoms.

Kukulo (Oikonomou) Islet, 66 feet high and much larger than that of Mavro, lies on the southern side of the inner part of Langeri Bay. Several drying sandbanks lie between the southeastern extremity of Kukulo and the mainland. The area between the western side and Mavro Islet, 800 yards apart, has depths of more than 8 fathoms. The bay indenting the mainland southward of Kukulo Islet has depths of less than 5 fathoms; it is not used for anchorage, being exposed to northwesterly winds.

4-157 Anchorage, sheltered from all but northwesterly winds, may be obtained in Langeri Bay. The best berth is in 6 fathoms, sand and weeds, about 600 yards east-southeastward of the northern entrance point and 400 yards off the northern shore.

4-158 Southern side of Port Naussa.—The southern shore of Port Naussa is irregular, forming small bays with slight depths unsuitable for anchorage. Depths of less

than 3 fathoms with rocks are found as far as 250 yards offshore in most places. About 600 yards northward of the eastern part of this shore and separated from it by depths of more than 5 fathoms is Mavro Islet, already described with Langeri Bay. Galaki (Galiatsos), a small rocky islet with shallows extending 100 yards from it, lies 700 yards westward of Mavro Islet and 200 yards off the southern shore of the bay.

Immediately westward of the small bay indenting the shore southward of the islet of Galaki is built the town of Naussa. Fronting the town is a small islet with rocks close southwestward of it. From this islet a jetty extends southeastward to the shore, and southward of the islet and jetty is a boat basin with quayed sides.

Plastira Bay is the name given to the southwestern arm of Port Naussa, which commences westward of the town. The depths in the greater part of this bay are less than 5 fathoms, the 3-fathom curve being 300 yards off the southwestern shore and 600 yards off the shore at the western end.

St. Artemios and St. Kali, two small islets, rise from the shallow water extending eastward from the northwestern side of Plastira Bay. A dangerous rocky patch with a depth of less than 6 feet lies 250 yards southeastward of St. Artemios, the northeastern islet. On St. Kali, the southwestern one, stands a church.

4-159 Anchorage.—Merchant vessels generally anchor in Plastira Bay. Sheltered from all but northeasterly winds, the best berth is in 5 fathoms, sand, about 300 yards southward of the islet of St. Kali.

Yanni (Ayios Ioannis) Bay, the northwestern arm of Port Naussa, has a precipitous eastern and northern shore. The church of Ayios Ioannis stands on a point at the head of the bay. The 3-fathom curve is 100

yards off the eastern and western shores, increasing its distance to 150 yards at the head. Shallows and rocks also extend 100 yards southward from Tourkos Point, the eastern entrance point.

4-160 Anchorage.—Yanni Bay affords the best anchorage in Port Naussa, as it is sheltered from all winds. The best berth is in the middle of the entrance in a depth of $6\frac{1}{2}$ fathoms, sand.

4-161 Naussa (Naoussa), the town located on the southern side of Port Naussa, has a population of about 960. The neighboring area produces grain, olives, grapes, and fruit. The town has telegraphic and postal facilities. Coastal steamers make regular calls, and roads lead to other important settlements on the island of Paros.

4-162 NORTHWESTERN SIDE OF PAROS—OUTLYING ROCKS—Coast (*H. O. Chart 4140*).—From Cape Korax, the northernmost point of the island, the northwestern coast trends $1\frac{1}{3}$ miles southwestward to Borino (Vorino) Point, and is indented by several small bays open to either the north or the northwest. The largest of these bays is one-half of a mile southwestward of Cape Korax, but it is not suitable for anchorage, although the water is deep in the outer part. A small rocky islet lies 150 yards westward of the northern entrance point, to which it is connected by shallows.

Beyond Borino Point the coast, precipitous and uninhabited, trends 5 miles southwestward to Phikas Point, the northern entrance point of Port Paroekia. It has considerable depths near it, and the only danger is a small rocky islet located one-half of a mile northward of Port Paroekia and 300 yards offshore. Maestro Point, about midway along this stretch of the coast, has a small bay immediately northeastward of it.

4-163 Merminga (Myrminga) Rock ($37^{\circ} 12' N., 25^{\circ} 04' E.,$ *H. O. Chart 4140*), an outlying rock located $8\frac{1}{2}$ miles west-north-

westward of Cape Korax and $6\frac{1}{2}$ miles off the nearest part of the northwestern side of Paros, is steep-to and attains a height of about 50 feet.

A light is exhibited from a white iron tower, 10 feet high, on Merminga Rock.

4-164 Islets and dangers in western approach to Port Paroekia.—Portis (Portes), two small and steep-to rocks above water, lie $1\frac{1}{2}$ miles west-northwestward of Phikas Point, the northern entrance point of Port Paroekia.

Buves (Vouves), a rocky shoal with a least depth of less than 6 feet, lies 700 to 1,200 yards southward of Portis. On the southwestern part of this shoal are two rocks above water. A detached patch with a least depth of $1\frac{3}{4}$ fathoms lies 400 yards southwestward of the southern rock.

Spiridioni Rocks (Ayios Spiridhon Islets), three in number, are located about 1,600 yards south-southwestward of Buves. Two of these rocky islets are located on the southern part of a dangerous rocky area extending 600 yards in a north and south direction and having a width of about 200 yards. The third rocky islet with shallows extending only a short distance from it lies 600 yards east-northeastward of the southern islet, from which it is separated by a channel with depths of 6 to 10 fathoms, the deeper water being toward the eastern islet. The largest islet of this group lies close north-northwestward of the southern islet, and within 200 yards of its eastern and northern sides are several rocks, some of which are above water. An above water rock lies about 250 yards northeastward of the larger islet, and depths less than 6 fathoms extend the same distance northward.

Skala (Kaki Skala), a rock above water having depths of less than 5 fathoms off it as far as 200 yards in all directions but the northeast, lies 1,200 yards east-southeastward of the easternmost islet of the Spiridioni group and 600 yards off the northwestern coast of Paros.

The islets and dangers described above lie not only in the western approach to Port

Paroekia but also in the northern approach to Antiparos Strait. Although the channels separating these four groups are deep, it is recommended that vessels approaching Port Paroekia from the westward pass northward of Portis.

4-165 Port Paroekia (Parakia) (Limin Paroikias) ($37^{\circ}05' N.$, $25^{\circ}09' E.$ *H. O. Chart* 4139), located near the southern end of the northwestern coast of the island of Paros, is a bay receding $1\frac{1}{4}$ miles in an east-northeasterly direction. Open to the west, the entrance is 1,400 yards wide between Phikas (Ayios Fokas) Point on the north and the islet of Peponi (Peponas) off the southern entrance point, but shoals on either side of the entrance reduce the navigable width to 600 yards. Between Phikas Point, the southern extremity of a peninsula having a width of one-fourth of a mile and extending one-half of a mile southward, and Krio Point, three-fourths of a mile eastward, is a smaller bay open to the southward and having depths of 10 to 5 fathoms, the 3-fathom curve being 200 yards off the western shore and 100 yards off the eastern shore. Immediately eastward of Krio Point is the head of the bay open to the southwest. Inland of the low shore of the head are scattered houses. The 3-fathom curve is as far as 400 yards offshore, leaving depths of more than 8 fathoms in the middle of the outer part of the head of the bay.

A shoal with depths of less than 5 fathoms extends 200 yards southward and 450 yards southeastward from Phikas Point. The islet of Peponi with a rock above water close northward of it lies on a shoal having depths of less than 5 fathoms and extending 400 yards northwestward from the southern entrance point of Port Paroekia. A shoal, which has a rock with a depth of 3 feet at its extremity, extends 400 yards north-northwestward from a point located 600 yards eastward of the southern entrance; a monument stands on this point. Loumbinas, a small rocky islet, lies on the inner part of this shoal. About 500 yards northwestward of Loumbinas lies a detached $5\frac{1}{4}$ fathom patch.

4-166 Paroekia Reef, marked by a light structure, lies in the middle of the bay in a position one-half of a mile east-southeastward of Phikas Point. The reef has depths of less than 6 feet, and depths of less than 5 fathoms extend a short distance northwestward and southeastward from it.

The town of Paroekia is built on the southeastern shore of the port in a position abreast of Krio Point. The shore fronting the northern part of the town is quayed, and the northeastern end of the quay terminates in a mole, near the root of which stand two conspicuous windmills. A short distance eastward of this mole is another mole, both being available only for small craft. The sandy shore on the western side of the town has depths of less than 3 fathoms extending offshore for a distance of 150 yards. A conspicuous house stands on a point just southward of the town, and on a slight height inland of this point are some conspicuous windmills.

4-167 Lights.—A light is shown on Phikas Point; another light is shown on Paroekia Reef. The northernmost rock of Portis is marked by a light on its northeastern end.

4-168 Anchorage—Directions.—The outer part of Port Paroekia has depths of 14 to 6 fathoms, sand and mud, but it is not suitable for large vessels. The best berth for small vessels is northward of the town in a depth of more than 8 fathoms in a position 200 yards south-southeastward of Krio Point and 600 yards east-northeastward of Paroekia Reef. If this berth is attacked by westerly winds, a vessel can seek shelter in the small bay eastward of Phikas Point.

Vessels should approach the entrance to Port Paroekia by steering for the light on

Phikas Point on a southeasterly or south-southeasterly course. To pass southward of the shoal extending from Phikas Point and northward of Paroekia Reef, steer 068° with Krio Point in range with the church of St. Georgio (Ayios Yeoryios), located 1 mile northeastward of the town. Having passed Paroekia Reef, alter course for the berth northward of the town, taking care not to approach too closely Krio Point, from which shallows extend 100 yards.

4-169 Paroekia (Paros), the capital of the island of Paros and one of the more important towns in the Cyclades, has a population of about 3,500. It has a pleasant climate during the summer on account of the prevailing northerly winds, which, however, sometimes attain a troublesome intensity. In the northeastern part of the town stands a celebrated church. Two small piers are located in the harbor. The town has telegraphic, postal, and custom facilities, and coastal steamers make it a regular port of call. In 1966 both piers were being widened and the area between them was being dredged.

Good drinking water is available in limited quantities from an aqueduct; gasoline, diesel oil and lubricants are available in limited quantities, and small quantities of provisions are available.

4-170 ANTIPAROS (ANDIPAROS) (H. O. Chart 4140), the large, irregular, mountainous island off the southwestern part of the island of Paros, from which it is separated by the narrow Antiparos Strait, extends $6\frac{3}{4}$ miles in a north and south direction and has a maximum width of 3 miles in its middle part, where it also attains its greatest height of 1,010 feet. The island of Despotiko, together with that of Strongylo farther westward, lies close off the southwestern part of Antiparos. Close off the northern end of Antiparos are several islets, being almost a continuation of it, and in the southern approach to Antiparos Strait is a chain of islets.

The greater part of the inhabitants live in the village of Kastro (Antiparos), located at the northern end of the island; the

remainder are found scattered through the well-cultivated northern half of the island, where grain, vegetables, and grapes are raised. Besides farming, the cattle industry is well developed, but the greatest wealth of the island is in its mines, principally zinc.

4-171 Antiparos (Andiparos) Strait—Islets and dangers.—This strait separating the island of Antiparos from the southwestern part of the island of Paros is narrow in its northern part but widens out in its southern part. Both parts are encumbered with islets. The strait affords anchorage at several places. Only small craft can transit this strait during the daytime, the least depth being 8 feet between the island of Antiparos and the small islet of Budaria.

Forming the western side of the northern entrance to the strait are the islets of Diplo (Dhilo) and Kabura (Kavouras). Diplo Islet, extending three-fourths of a mile in a northwesterly and southeasterly direction, is separated from the northern end of Antiparos by a shallow and narrow channel; Kabura Islet, extending one-half of a mile in an east-northeasterly and west-southwesterly direction, lies close northeastward of the northeastern coast of Diplo Islet, to which it is connected by shallows of sand.

Kokino Rock (Kokkinos Tourlos), a small, steep-to, rocky islet, lies 200 yards northwestward of the northern extremity of Kabura Islet, and 400 yards northeastward of this same extremity is Turlo Rock (Mavros Tourlos), another small rocky islet remarkable for its similarity to a square tower. This latter islet is surrounded by shallow water, which also obstructs the channel southwestward of it, but the channel between this islet and the Spiridioni Rocks (sec. 4-164) to the northward is one-half of a mile wide and deep in its middle part. The coast of Paros opposite these islets trends in a southerly direction and is free of dangers.

It is indented by a small bay having depths of 5 to $3\frac{3}{4}$ fathoms in the outer part. On the northern side of the bay stands the church of Ayia Irini.

Temporary anchorage during the summer, sheltered from all but northeasterly winds, can be taken by small vessels in a depth of more than 5 fathoms in the entrance to the bay formed between the northeastern coast of Diplo Islet and the southwestern coast of Kabura Islet. The berth is northward of the islet of Oro (Magrines), located 400 yards east-northeastward of the southeastern point of Diplo Islet. The channel between the point and islet has depths of $3\frac{1}{4}$ to $3\frac{3}{4}$ fathoms on the islet side.

4-172 Salango, a small islet with clear shores, lies 500 yards southeastward of the above-mentioned islet of Oro and about the same distance eastward of the northeast point of Antiparos, from which it is separated by a channel having a depth of $4\frac{1}{4}$ fathoms in midchannel. Budaria (Remato), another small islet surrounded by shallows, lies in the narrowest part of the strait in a position 400 yards southward of Salango, and 200 yards southward of this islet are rocks with slight depths over them. The recommended fairway, as well as the least depth of 11 feet in the strait, is westward of Budaria, and close southward of this same islet a submarine cable (telephone) crosses the strait.

4-173 The eastern coast of Antiparos, forming the western shore of the strait, trends almost in a direct north and south direction. Close southward of the northeastern point of the island is a small bay open to the south-southeastward and having depths of less than 3 fathoms. The village of Kastro (Antiparos) is located on the western side of this small bay. Adonis Rock (Ayios Andonios Islet), located $1\frac{1}{2}$ miles southward of the village and 300 yards off-

shore, has a church on it, and 500 yards south-southwestward of this small rocky islet and close offshore is the above-water rock of Marmara. About 1,400 yards southward of Adonis Rock is Glipho Point, and 1 mile farther southward is Akakos Point, inland of which is a celebrated cave. Akakos Point is the northern limit of a large bight having depths of 13 to 10 fathoms in the outer part and depths of less than 5 fathoms as far as 600 yards offshore in the middle part.

Sostis Bay, a small bay open to the east and having a church at its head, is located at the southern limit of this bight. From Sostis Bay the irregular coast trends 1 mile southward to Cape Petalidha, the southern extremity of the island of Antiparos, and 400 yards off the northern part of this coast is Petalidha Rock. A dangerous rock nearly awash lies 200 yards northeastward of Petalidha Rock, and whenever this rock dries 1 foot, the depths in the strait to the northward will be less than those charted.

During fine weather, in the summer, temporary anchorage can be obtained a short distance north-northeastward of Akakos Point in depths of 12 to 8 fathoms. Landing can be made on the sandy beach of the small bay westward of the point.

4-174 The southwestern coast of the island of Paros from the narrowest part of Antiparos Strait trends first southward and then southeastward for a total distance of 6 miles to Cape Mauro, the southernmost part of the island. The northern part of this coast is low, being backed by a well-cultivated plain, but the southern part is rather precipitous and indented by several small bays with shallow depths in their inner parts. Both Mirona Point and Makria Point, located respectively 2 miles and $3\frac{1}{4}$ miles west-northwestward of Cape Mauro, have shallows and rocks extending a short

distance southward from them, but elsewhere off the southern part of the southwestern coast the depths are great.

A chain of islets, called Pantieronisia, lies in the southern and wide part of Antiparos Strait in a position parallel to the southwestern coast of the island of Paros, from which it is separated by deep water. Pandros (Pandieros) Islet, the southernmost and largest of the chain, is located $2\frac{1}{2}$ miles westward of Cape Mauro. Close north of Pandros Islet is that of Tigani, and immediately northwestward of this latter islet is Glaraboda (Glarapounda) Islet. A rock with less than 6 feet of water over it lies 600 yards westward of the northwestern point of Pandros Islet, and extending 600 yards south-southwestward from this rock is a shoal with a least depth of 3 fathoms.

A detached, rocky patch of 4 fathoms lies 500 yards northeastward of the northeastern point of Pandros Islet, and extending a short distance northward from the northern end of Glaraboda Islet are shallows of 1 fathom. Preza, a small rocky islet with shallows extending a short distance from it, lies one-half of a mile north-northwestward of Glaraboda Islet, and 600 yards farther north-northwestward is that of Turna (Tourlos), with a much smaller islet close southward of it. The channels between the islets of Glaraboda, Preza, and Turna are deep in mid-channel. A continuation of this chain is Anavadi (Anavathi) Rock, lying one-half of a mile north-northwestward of Turna and having a depth of less than 6 feet over it.

4-175 Directions.—As Antiparos Strait is narrow and tortuous, small vessels should use it only in case of necessity. The conditions must be favorable, and a pilot with local knowledge is necessary at night.

Coming from the southward and having reached a position three-fourths of a mile

south-southwestward of the islet of Budaria (Remmato), steer with the northwestern extremity of Budaria in range 021° with the southeastern extremity of Salango. As soon as the eastern extremity of Oro (Magrines) comes in range 359° with the middle of Turlo Rock (Mavros Tourlos), steer on this range. When abreast of Salango, change course to north-northeast for the open water in the northern part of the strait.

To pass through the strait from north to south, steer the preceding ranges in inverse order. As these ranges are astern, they are more difficult to steer.

4-176 NORTHWESTERN AND SOUTHWESTERN SIDES OF ANTIPAROS—OFF-LYING ISLANDS—Coast (*H. O. Chart 4140*).—From Borino (Vorino) Point, the northwestern extremity of the northern end of the island of Antiparos, the northwestern coast trends $3\frac{1}{2}$ miles southwestward to Cape Kaloyero. Slight depths and rocks extend a short distance offshore, and 400 yards west-southwestward of Borino Point lies a detached rock with a depth of less than 6 feet. This uninhabited coast is indented by several small bays unsuitable for anchorage, and the one located 1 mile north-eastward of Cape Kaloyero is named Livadhi Cove.

At Cape Kaloyero the coast turns to the south and trends $1\frac{1}{2}$ miles to Trakhilo Point, the western extremity of a narrow peninsula extending one-half of a mile westward from the general trend of the coast.

4-177 Despotiko (Dhespotiko), the island located close off the southwestern coast of Antiparos in a position one-half of a mile southward of Trakhilo Point, extends 3 miles in an east and west direction and has a maximum width of $1\frac{2}{3}$ miles in its western part. This uninhabited, unfertile, and mountainous island attains its greatest height of 640 feet in Mt. Kudro (Koudhros), located close northward of Kudro (Koudhros) Head, the precipitous southernmost point of the

island. Akra Koutsouras, the eastern extremity of Despotiko, lies about $1\frac{1}{2}$ miles southeastward of Trakhilo Point; a light is shown from Akra Koutsouras. The coast is steep-to except for some rocks extending as far as 250 yards from the northern part of the southwestern coast.

Kalika Rocks, two detached reefs with a depth of $2\frac{1}{2}$ fathoms each, lie $1\frac{1}{4}$ miles westward of Kalika Point, the northernmost point of the island of Despotiko. Located about 300 yards apart in a north and south direction, these two reefs are separated by depths of 5 to 13 fathoms.

To pass westward of the Kalika Rocks, keep the western side of the islet of Strongylo bearing 180° or less. When the boat channel at the northeastern point of Despotiko bears 099° and is open northward of Kalika Point, a vessel is northward of Kalika Rocks.

Strongylo (Strongilo), an islet 615 feet high in its northern part, is separated from the southwestern coast of Despotiko by a deep channel having a width of 850 yards. The depths increase considerably at a short distance off the precipitous coast of this island.

A light is exhibited at the southwestern end of Strongylo.

4-178 Port Despotiko (Dhespotiko), the bay formed between the southwestern coast of Antiparos and the northeastern coast of Despotiko, trends 1 mile in a west-southwesterly direction from its entrance having a width of 800 yards and open to the south. At the west-northwestern end of the bay is the islet of Tsimindiri, on either side of which is a shallow boat channel. The depths in the entrance are 13 fathoms, decreasing gradually to the 3-fathom curve located 600 yards southeastward of the islet of Tsimindiri. The land on the northern side of the bay has well-cultivated areas and scattered houses.

Port Despotiko affords limited but secure anchorage to small vessels sheltered from all directions but the south. A good berth is in depths of 5 to $3\frac{3}{4}$ fathoms, sand, 800 yards southeastward of the eastern point of the islet of Tsimindiri.

4-179 Coast.—From the eastern entrance point of Port Despotiko the southwestern coast of the island of Antiparos trends $2\frac{1}{4}$ miles southeastward to Cape Petalitha, the southern extremity of the island. Mastiki Point, located 1,400 yards southeastward of the eastern entrance point, is the southern extremity of a small peninsula projecting from the general trend of the coast, and northward of this peninsula rises a 700-foot hill. A small rocky islet and rocks above and below water lie as far as 400 yards off that part of the irregular coast trending one-half of a mile northwestward from Cape Petalitha.

4-180 SYRA (SYROS) (SIROS) ISLAND (*H.O. Chart 4133*), the large island located 19 miles north-northwest of that of Paros, occupies a middle position between the western chain and the eastern chain of the Cyclades. This mountainous island extends over 9 miles in a north and south direction, has a maximum width of 6 miles in its southern part, and rises to a height of 1,450 feet in Mt. Pyrgo (Pirgos), located in the northern part, and to a height of 967 feet in Mt. Nites, located in the southern part. The coast is very irregular, and several dangers lie off the southeastern part of the island. The two safest anchorages are Syra Harbor, located midway along the eastern side of the island, and Krasi Bay, located near the southern end of the western side; the other bays on the western side of the island also afford good and safe anchorage.

The population of the island numbers about 30,000 inhabitants, the greater part of whom live in the city of Syra (Siros); the remainder are scattered in smaller settlements along the coast and in the interior. There are some level areas of limited extent between the coast and the inland hills; these

are well cultivated and produce grain and vegetables. The island has some manufacturing. Some attempts have been made to revive the shipbuilding industry, which was large in the past.

4-181 NORTHEASTERN AND EASTERN SIDES OF SYRA ISLAND.—**Cape Trimesson (Trimeson)** ($37^{\circ}31' N.$, $24^{\circ}53' E.$, *H.O. Chart 4133*), the northern extremity of the island, has precipitous sides with great depths close offshore.

A light is exhibited from a white iron tower on a concrete base, the whole 11 feet high, located about 100 yards within Cape Trimesson.

4-182 Coast.—The northeastern coast and the northern part of the eastern coast of the island of Syra is uninhabited. Forming numerous points and small open bays unsuitable for anchorage, the precipitous coast has deep water close offshore and is free from dangers.

Mustapha (Forissa) Point, located $1\frac{1}{2}$ miles east-southeastward of Cape Trimesson, has immediately eastward of it Fonissa Bay, open to the north. About one-third of a mile eastward of Fonissa Bay is the smaller bay of Sikaminia, the western entrance point of which is the point of Traxillia (Trakhilia), and 600 yards farther eastward is the small bay of Griza, limited to the east by Kaloyeros Point, the northeastern point of the island. Drinking water may be obtained at the last two mentioned bays.

From Kaloyeros Point the coast trends $1\frac{1}{2}$ miles southeastward to Mnimata Point, where it turns south. It is indented by several bays; Glisura, the one immediately north of Mnimata Point, has depths of 5 to 3 fathoms, and affords shelter to small vessels during southwesterly winds. About one-third and two-thirds of a mile southward of Mnimata Point are, respectively, the small bays of Lula (Loulas) and Koraki. About one-third of a mile southward of the bay of Koraki and near the shore is the small islet of Kommemo, still charted in 1943 as the peninsula of Stiphti. Armino (Armena) Point is located

800 yards southward of this islet, and 1,400 yards farther southward is Cape Vapore (Vaporía), the northern limit of Syra Harbor. Between Armino Point, which is precipitous, and Cape Vapore the coast is known as Mapa.

4-183 Syra (Siros) Harbor ($37^{\circ}26' N.$, $24^{\circ}57' E.$, plan on H.O. Chart 4133), about 1 mile wide between Cape Vapore (Vaporía) on the north and Kodoyari (Kondoyiannis) Point on the south, recedes as far as 1,600 yards westward in its southern part. A peninsula extends 400 yards southward from the northern side of the harbor in a position 500 yards south-southwestward of Cape Vapore, and extending 400 yards south-southeastward from the extremity of this peninsula is a low breakwater of loose rocks, leaving an entrance about 600 yards in width. The controlling depth at the entrance is 50 feet. The northern part of the harbor (Commercial Basin), which is within this breakwater and peninsula, has depths of 8 to $5\frac{1}{2}$ fathoms in the outer part and $4\frac{1}{4}$ to $3\frac{3}{4}$ fathoms in the inner part. A floating dock is moored off the western side of the breakwater. Except for the breakwater the shore of the northern part of the harbor is quayed and has shallow depths extending offshore for a short distance. On the western side of the harbor (Shipyard Basin), abreast of the breakwater head are a shipyard and some factories. A T-shaped pier, about 260 feet long, extends from the western shore of the harbor in a southeasterly direction from a position about 675 yards west-northwestward of the southeastern end of the breakwater. The depth alongside the face of the pier is about 29 feet and increases to about 14 fathoms in a position about 500 yards southeastward of the pier face. Dockyard Pier extends southeastward from a point on shore about 700 yards west-southwestward of the breakwater head. Dockyard pier was being extended about 600 feet in 1966. The southern shore, indented by two small bays, is rather high and precipitous, and the 3-fathom curve here about 100 yards offshore.

A mooring buoy is moored about 800 yards westward of the head of the breakwater.

In 1966 an artificial islet, for use in mooring, was under construction in southern part of the harbor, about 600 yards south-southwestward of the head of the breakwater.

A light buoy is moored about 750 yards southwestward of the head of the breakwater.

4-184 Landmarks.—Conspicuous landmarks are as follows: Buildings of an asylum, on the inner projecting point of the southern shore; three large white buildings with red roofs, that house the military school, in the southwestern part of the harbor; large cloth factory with conspicuous chimney located one-half of a mile west-southwestward of the head of the breakwater; the two conspicuous conical hills on which the northern part of the city is built, each hill being covered with white houses and having a church on its summit. A radar station on the summit of Mt. Pyrgo (sec. 4-180) is very conspicuous.

4-185 Dangers—Beacon.—Karfomeni Reef lies at the northern end of a shoal spit extending about 400 yards off the southwestern shore of the harbor. The 3-fathom curve is 250 yards off this shore.

A 3-foot iron stake, the remains of a damaged beacon, marks the northern part of Karfomeni Reef.

4-186 Lights.—A light is exhibited from a white hut with a red lantern, the whole 20 feet high, on Kodoyari (Kondoyiannis) Point, the southeastern limit of the harbor.

A light is exhibited from a red iron column with a hut, the whole 19 feet high, close within the head of the breakwater.

4-187 Anchorage.—Large vessels unable to enter the northern part of the harbor can anchor in the entrance to Syra Harbor in such a position where they will not interfere with traffic. A good berth is in 14 to 12 fathoms about 300 yards southwestward of the head of the breakwater. Vessels using this outer anchorage are subject to northeasterly and northerly winds, which sometimes make communication with the shore and coaling from lighters impossible. Should this outer anchorage become untenable, a vessel can shift to the anchorage in the lee of Gaidaro Island.

Vessels drawing up to 20 feet can moor at the head of the northern part of the harbor, with sterns fast to the bollards on the quay. To avoid impeding the navigation of the harbor and to receive the benefit of cooler air, naval vessels moor off the northern part of the breakwater. The bollards on the breakwater are not very strong, as the breakwater is constructed of loose blocks; because of this, naval vessels lay out anchors on the seaward side of the breakwater and secure their sterns fast to them. As the breakwater is low, a vessel moored here rides uneasily during strong northeasterly and northerly winds, but as the water is deep up to 20 yards of the breakwater, she can haul her stern closer to the breakwater.

The holding ground in Syra Harbor is not very good, and vessels may drag their anchors during strong northeasterly winds in August and September, or during strong southwesterly winds in March and April.

4-188 Prohibited anchorage.—Vessels are prohibited from anchoring outside of the harbor in a position northward of line between the head of the breakwater and the northern extremity of Gaidaro Island. Submarine telegraph cables are laid in this area.

4-189 Pilotage.—Pilots meet vessels about 1 mile east of the breakwater in either a white motorboat with a "P" painted on the bow, or a tug. Pilotage is compulsory.

4-190 Directions.—The head of the breakwater should be given a fairly wide berth, as the boulders with which it is constructed extend under water for about 50-60 feet beyond the breakwater light.

4-191 Tides and currents.—The maximum spring rise is about 1 foot. The sea level in the harbor is also influenced by the winds, and according to local information there is a drop in the level with northerly winds whereas with southerly winds the level rises. With very strong winds a rise or fall of 6 or 8 inches may be observed.

There are no currents in the harbor area.

4-192 SYRA (SIROS) (ERMOUPOLIS) (37° 26'N., 24°57'E., plan on H.O. Chart 4133), the capital of the Cyclades, had a population of about 14,400 in 1961. This city, together with its old part to the northwestward,

presents the appearance of two distinct conical hills covered with white houses, each hill having a church at its summit. Its harbor and that of Port Agios Nikolaos, located at the island of Zea, are the only two coaling stations in the Cyclades. Syra has lost some of its former commercial importance to Piraeus.

Basins—Berths.—The principal basins in the port are Commercial Basin, Shipyard Basin, and Outer Basin.

Commercial Basin, northwestward of the breakwater, contains most of the wharf area of the port. Depths of 32 to 75 feet exist in the southern part of the basin, and depths of 22 to 24 feet are found about 120 feet off the quays. Thirty vessels up to 350 feet in length can moor off the quays in 19 to 24 feet. A Free Zone is located on the southeastern side of this basin.

Shipyard Basin, at the head of the harbor, has general depths of about 10 feet and depths of 16 feet are found about 240 feet off the quays. A general cargo T-head pier can accommodate a vessel alongside in a depth of 28 feet.

Outer Basin, southward of the breakwater, has the greatest depths in the harbor. Depths range from 5¼ to 18¼ fathoms, but the basin is entirely exposed to easterly winds.

Numerous small craft and lighter berths are available in the harbor.

Two tugs, several lighters and cranes, including a floating 25-ton capacity crane, are available.

Repairs.—Major repairs can be effected. There is a small shipyard. The approximate dimensions of the largest floating dock in the port are: maximum length 524 feet; length over center keel blocks 492 feet; breadth 77 feet; maximum draft of ship that can be accommodated 24 feet; lifting capacity 12,000 tons.

Two marine railways, of 150 tons and 1,000 tons, respectively, are available.

Supplies are available in limited quantities. Fresh provisions in small quantities and limited variety are procurable. Water in limited quantity is piped to the quays. Fuel, water, and diesel oils can be supplied from a hulk moored in the harbor.

Communications.—Syra is connected to the general telegraph system. Frequent steamer communication is maintained with Piraeus and the other islands of the Cyclades. Six asphalt roads in fair condition connect the port with several small villages and landings, mainly, on the southern side of Syra Island.

Hospital.—The city has two hospitals that will receive seamen.

Deratization can be carried out. Deratization Certificates and Deratization Exemption Certificates are issued.

Climate.—The climate is remarkably healthful, extreme cold or frost being unknown, snow falling once or twice in three or four years and melting immediately. In summer it is occasionally sultry during calms or with south or southwest winds, and in the lower part of the city, which is built and paved with crystalline limestone, it is then disagreeably hot. The prevailing wind, however, is from the north and blows throughout the summer, with occasional lulls, or changes to the south, keeping the air cool, especially in the more elevated parts of the city. It rarely rains, except in the winter, and the springs being insufficient for supplying water, the rain water is collected from the roofs and terraces of the houses into cisterns, of which every house has one. This

water is used for drinking by the inhabitants, who prefer it, as it is soft and good.

Meteorological table.—See appendix II.

4-193 Gaidaro Island (Gaidhournisi), located $1\frac{1}{4}$ miles east-southeastward of the head of the breakwater at Syra Harbor and one-half of a mile offshore, is 1,400 yards long in an east and west direction, 700 yards wide, and 128 feet high. This island shelters in part the entrance to Syra Harbor from southeasterly winds, and is a good mark for recognizing the harbor. About 200 yards eastward of the island, from which it is separated by depths of 3 fathoms, is the islet of Strongilo.

A light is exhibited from a cylindrical masonry tower with a dwelling, the whole 96 feet high, on the western summit of Gaidaro Island.

Anchorage.—Fair anchorage, sheltered from northeasterly winds, which sometimes blow hard, can be obtained southwestward of Gaidaro Island in depths of 18 to 12 fathoms, coarse sand and shells with patches of weeds. This is a good anchorage in the summer.

4-194 Coast.—The remainder of the eastern coast of Syra Island to the south of Syra Harbor is rather precipitous and free of dangers. Kalamista Point, located two-thirds of a mile south-southeastward of Syra Harbor, has Karyiotis Bay immediately northwestward of it. About 1,400 yards south-southeastward of Kalamista Point is Firo Langoni Bay, about 800 yards wide in its entrance between Kakamasti (Kremasti) Point on the north and Koklaka Point on the south. Shallows and rocks extend 100 yards from the latter point. Point Phokia (Fokotripes), the southeastern point of Syra Island, is 800 yards south-southeastward of Koklaka Point. Shallows extend 200 yards southward from Point Phokia.

4-195 SOUTHERN SIDE OF SYRA ISLAND—OFF-LYING ISLETS AND DANGERS.—**Nata** ($37^{\circ}22' N.$, $25^{\circ}04' E.$, *H. O. Chart 4141*), located $4\frac{1}{2}$ miles east-southeastward of Point Phokia, is a small flat islet 25 feet high. Depths of 3 to 4 fathoms extend as far as 400 yards northward from the islet, and 300 yards west-southwestward of the islet lies Sunk Rock, a detached rocky patch with a depth of less than 6 feet. In 1931 the steamer *Eugenie Chandri* was wrecked on this danger.

A light is exhibited from a white iron tower, 16 feet high, on the terrace of a small house located on Nata.

Obstructions.—An area extending eastward, between Point Phokia and Xodra Head, and terminating near the eastern extremity of Aspro Islet is dangerous due to submerged obstructions. Vessels are permitted to navigate through this area, but anchoring within it is prohibited. The area extends eastward to the meridian of $25^{\circ}00'20'' E.$ and lies between the parallels of $37^{\circ}22'48'' N.$ and $37^{\circ}24'00'' N.$

4-196 Aspro Islet (Aspronisos) ($37^{\circ}24' N.$, $25^{\circ}00' E.$, *H. O. Chart 4133*), located 1 mile east-southeastward of Point Phokia, has a high, precipitous, steep-to southern side, but the land descends gradually toward the low northern part of the islet. A shallow rocky tongue extends 600 yards northwestward from the western point of the islet, and on the extremity of this tongue is a rock nearly awash. Rocks above and below water extend 300 yards northeastward from the northeastern part of the island, and extending beyond them for another 200 yards is a steep-to shoal with a least depth of $3\frac{3}{4}$ fathoms. The eastern, northern, and western sides of this islet should be given a berth of one-half of a mile. A light is shown from the western extremity of the islet.

The channel between the shallow tongue extending northwestward from Aspro Islet to the east and Point Phokia, together with

Trypa Rock, to the west has a width of 1,400 yards and deep water. To navigate this channel safely, keep the western point of Gaidaro Island open eastward of Point Phokia, or the western point of Gaidaro Island in range about 345° with the coast of the northeastern part of Syra Island.

4-197 Trypa Rock (Tripa Reef), a $1\frac{1}{2}$ -fathom patch, lies 800 yards southward of Point Phokia and the same distance off the coast to the southwestward of the point. This patch lies at the middle of a shoal extending 400 yards in a southeasterly and northwesterly direction. The southern side of Cape Vilostasi bearing 252° and open southward of Xodra Head leads southward of this danger. To pass eastward of Trypa Rock, use directions given in preceding paragraph.

4-198 Coast.—The southern coast of Syra Island is rather irregular. Sandorini Point, located 1,200 yards west-southwestward of Point Phokia, has Mebati Reef (Empatis Rocks), above and below water, extending 500 yards south-southwestward from it. Abello (Ampelos) Islet, a small rocky islet, lies 400 yards westward of the outer extremity of Mebati Reef and 200 yards off the coast, to which it is connected by depths of less than 3 fathoms. The area of deep water between Mebati Reef and Abello Islet is known as Ampelos Bay.

Xodra Head (Khondra tis Varis), precipitous and steep-to, is the termination of a peninsula with a width of 500 yards that extends one-half of a mile southward from the coast close westward of Abello Islet. Kateragaki Point, the southeastern extremity of this head, is a tongue of land extending 200 yards in an east-southeasterly direction.

Vare (Varis) Bay, about 600 yards wide in its entrance between Xodra Head on the east and Aklathi (Akhladhi) Point on the

west, recedes 900 yards in a northerly direction. The inner part of the bay has general depths of 7 fathoms, the 5-fathom curve being 100 yards off the shore, which is clear of dangers. A projection on the western shore forms two smaller bays, Akhladhi Bay to the south and Stravokanis Bay to the north. Vare Bay affords good shelter from easterly, northerly, and westerly winds. Varis, a settlement, is located at this bay.

Kasan (Khasani), open to the south, is located immediately westward of Aklathi Point, and 1 mile west-southwestward of this bay is Cape Mavros, the extremity of a conspicuous tapering peninsula extending 500 yards in a southerly direction. The depths are great at a short distance seaward of this cape. About one-half of a mile west-southwestward of Cape Mavros is the steep-to and precipitous headland of Karamboua Point, and between them is Megalo (Megalos Yialos) Bay. The 5-fathom curve is 300 yards off the northern shore of this bay, and within this curve lies Vasalo Islet. Tria (Tria Langonia) Bay, the small bay immediately westward of Karamboua Point, has depths of less than 5 fathoms in its entrance and less than 3 fathoms farther in. From Gurgorani Point, the western limit of Tria Bay, the coast, precipitous, steep-to, and clear of dangers, trends 1 mile west-southwestward to Cape Vilostasi.

Cape Vilostasi (Velostasion), the southwestern extremity of Syra Island, is precipitous and clear of dangers. The hilly land within the cape rises to a height of 344 feet.

A light is shown on the cape.

4-199 WESTERN SIDE OF SYRA ISLAND—Coast.—Between Cape Vilostasi and Cape Asikono, $2\frac{1}{4}$ miles north-northwestward, the western coast of the island recedes over $1\frac{1}{4}$ miles northeastward to form a large bay. Several islets lie in this large

bay, the northeastern part of which is named Krasi Bay.

Cape Asikono (Atsinganokastro), precipitous on the southern and western sides, has great depths close to it. About 1,700 yards northeastward of the cape rises a hill, 826 feet high.

Strongilo, a small islet, 141 feet high, surrounded by deep water, lies 1,400 yards northward of Cape Vilostasi. It is separated from the coast to the east by a channel with a width of 400 yards and a depth of 8 fathoms in midchannel. Platilo (Skinonisi), another small islet with a height of 82 feet, lies one-fourth of a mile north of that of Strongilo. Shallows extend as far as 100 yards from the islet, and also across the channel that separates the islet from the coast, a distance of 300 yards. The coast between these two islets recedes slightly to form a small cove with shallow depths. At the head of this cove is the small settlement of Komito, and northward of this settlement and abreast of Platilo rises a hill to a height of 358 feet.

Psathika (Psathonisi), a small rocky islet with shallows extending 70 yards from its western side, lies in the western approach to Krasi Bay in a position one-half of a mile southeastward of Cape Asikono. A second small rocky islet, Alatonisi, lies 300 yards westward of the northern entrance point of Krasi Bay and 200 yards off the coast.

4-200 Krasi (Foinikos) Bay ($37^{\circ}23' N.$, $24^{\circ}53' E.$, *H.O. Chart 4138*), the head of the much larger bay between Cape Vilostasi and Cape Asikono, recedes over one-half of a mile in an easterly direction and has general depths of 8 to 4 fathoms, the 3-fathom curve being as far as 120 yards offshore. Thikiazo (Dhiakoftis) Point, the southern entrance point, is the western extremity of a small peninsula, 72 feet high at its inner part, which shelters the bay from the south. The

northern entrance point located 600 yards northward of Thikiazo Point has shallows with rocks above water extending 150 yards southward from it. Psakhno, a very small rocky islet, lies within the 3-fathom curve on the eastern side of the bay.

Good anchorage, sheltered from easterly and northerly winds, may be obtained in Krasi Bay, especially in its northern part.

Two small settlements, Foinikas on the northern shore and Poseidonia (Posidhonia) on the eastern shore, have a total population of about 650.

4-201 Coast.—From Cape Asikono the coast, precipitous, steep-to, and clear of dangers, trends $1\frac{1}{4}$ miles north-northeastward to Ai Stefanos Point. About midway along this part of the coast is the small bay of Xarathuma (Fregada), open to the west and having great depths.

Galissas Bay, entered between Ai Stefanos Point and Cape Capitaniki (Katakefalos), located 1,400 yards northward, recedes 1,500 yards in an easterly direction. The greatest part of this bay has depths of 44 to 16 fathoms, and the innermost part has depths of less than 10 fathoms, the 3-fathom curve here being 200 yards offshore. Alipho (Alifo) is the name given to that part of the bay immediately eastward of Ai Stefanos Point. At this bay is located the small village of Galissas.

4-202 Coast.—From Cape Capitaniki the coast, precipitous and clear of dangers trends $1\frac{1}{8}$ miles northeastward to Cape Thani, immediately south of which is a small bay with great depths. From Cape Thani the coast trends for another one-half of a mile northeastward to the outer southern entrance point of Kini Bay.

4-203 Kini Bay and Delphini Bay (Ormos Dhelfino) are, respectively, the southeastern arm and the northeastern part of a large bay between the outer southern en-

trance point of Kini Bay and Trakhyta Head (Cape Trakkilos), located 1,400 yards northward.

Kini Bay recedes 400 yards eastward from its entrance having a width of 400 yards. The bay has depths of 8 to 5 fathoms in its outer part, and the 3-fathom curve is 200 yards off the head, where is located the small village of Kini.

Delphini Bay, sheltered from the north by the conspicuous and precipitous peninsula of Trakhyta Head, affords shelter from northerly and northeasterly winds. A small rocky islet lies 300 yards off its low northeastern shore, and the 3-fathom curve is offshore as far as this islet, seaward of which are depths of more than 10 fathoms.

Delphini (Dhelfino) Rock, a detached and steep-to 2-fathom patch, lies 700 yards northwestward of the outer southern entrance point of Kini Bay. The eastern side of the islet of Barbarusa kept open westward of Trakhyta Head leads westward of this danger.

4-204 Coast.—Barbarusa (Varvarousa), a steep-to and precipitous rocky islet, is located 800 yards northward of Trakhyta Head. It is separated from the coast of Syra Island by a channel having a width of 150 yards and encumbered with rocks.

Agiota Bay (Ormos Aetou), located 400 yards northward of the islet of Barbarusa, is 600 yards wide in its entrance between Aetos Point on the south and Saraceniko (Sarakinko) Point on the north, and recedes the same distance in an easterly direction. The bay has depths of more than 22 fathoms, and depths of about 3 fathoms are found only in the northeastern and the southeastern recess.

Between Saraceniko Point and Grammata Head, $1\frac{1}{2}$ miles north-northwestward, the coast of Syra Island recedes eastward to form a large bay, the shore of which is

further indented by smaller bays. Grammata Bay, the one 700 yards southeastward of Grammata Head, divides inside its entrance into a northwestern, northern, and northeastern arm. Southeastward of Grammata Head are Marmora Bay and Megaloki (Megas Lakkos) Bay.

An isolated rock with a depth of less than 6 feet lies 1,100 yards northward of Saraceniko Point and 250 yards westward of the point on the southeastern side of Megaloki Bay.

Grammata Head, a rocky precipice having a yellowish color and the shape of a bell, stands out conspicuously from the background. It is easily made out by vessels coming from the westward.

From Grammata Head the precipitous coast with several small islets close off it trends 1,600 yards north-northwestward to Palos Point, where it turns and continues for another one-half of a mile northeastward to Cape Trimesson (sec. 4-181), the northern extremity of Syra Island. Palos Point, clear of dangers, is a narrow extension of the coast to the westward.

4-205 JURA (GYAROS) (YROURA) ($37^{\circ}37' N.$, $24^{\circ}43' E.$, plan on H. O. Chart 4133), the island located 8 miles northwestward of the northern extremity of Syra Island, occupies a middle position between the islands of Kythnos and Zea on the southwest and those of Tinos and Andros on the northeast. This barren and hilly island extends $4\frac{3}{4}$ miles in an east and west direction and has its maximum width of $2\frac{1}{2}$ miles along its eastern side. The island has no harbors, or even temporary anchorage on account of the great depths off its precipitous coast. The only inhabitants are shepherds, but they do not stay on the island the whole year.

Glaro Islet, a small rocky islet, lies close

off the southeastern point of the island of Jura, the narrow channel between them being encumbered with rocks. Another small islet lies close off the northern side of the tapering western point of the island. The only danger is a sunken rock lying 1,400 yards westward of the northeastern point of the island and 200 yards off the northern coast. Elsewhere the depths are considerable and free from off-lying dangers.

Prohibited area.—Navigation is prohibited, except with special permission, within 2 miles of Jura Island.

4-206 RHENEA (RINIA) (MEGALI DELOS) (*H. O. Chart 4141*), located 11 miles eastward of Syra Island, is the westernmost of a group of three islands, Delos being the middle and smallest one and Mykonos the easternmost and largest one. Consisting of a northern and a southern part connected by a narrow isthmus, this irregular island extends $4\frac{1}{2}$ miles in a north and south direction and attains a height of 490 feet in the northern and larger part. The coast forms several bays, which can be used as refuges, depending on the direction of the wind. As dangers lie off the coast in many places, the island should be given a berth of 1 mile by passing vessels.

The population numbers about 150 inhabitants, engaged in farming. The island was used as a quarantine station.

4-207 Southern and western sides of Rhenea—Anchorage.—The middle part of the southern coast of the island is indented by a small bay having a width of one-fourth of a mile in its entrance and receding one-half of a mile in a northerly direction. The depths are 17 fathoms in the entrance, 12 to 7 fathoms in the middle part, and $3\frac{1}{4}$ fathoms at the head, where small craft can find refuge from easterly, northerly, and westerly winds. Since a sunken rock lies off the

western shore of this bay, the eastern shore should be favored.

Miso Bay, the bay indenting the southern half of the western coast of the island, has rocks and shallows along its southeastern and eastern shores, the distance offshore being as far as 600 yards along the eastern shore. Rocks above and below water also lie a short distance off Podi Point, the southern entrance point, as well as the southwestern point of the island. Sheltered from easterly and northerly winds, especially the etesians, good anchorage is available in depths of 15 to 9 fathoms, sand, in a position about 350 yards southward of and about midway between the two small peninsulas on the northern side of the bay.

The coast between the northern entrance point of Miso Bay and Kaloyeros Point, the northwestern extremity of the island, has along it rocks above and below water, which are as far as 400 yards offshore in places.

4-208 Northern and eastern sides of Rhenea—Anchorage.—Immediately eastward of Kaloyeros Point is a bay, open to the north, the eastern entrance point of which is Bia (Via) Point, the northern extremity of the island. The width of the entrance and the penetration to the south-southeast approach a distance of 1 mile. About one-half of a mile east-northeastward of Kaloyeros Point is a small rocky islet, connected to the shore 400 yards southward of it by shallows and rocks. The depths at the head are less than 1 fathom, and depths of less than 3 fathoms extend 300 yards offshore from the remaining shore. Small and even large vessels can obtain shelter from southerly winds by anchoring in the outer part of the bay in depths of 15 to 10 fathoms, but the anchorage in Skhino Bay is preferable.

From Bia Point the northeastern coast of the island of Rhenea trends $1\frac{1}{2}$ miles south-

eastward to the northern limit of Skhino Bay. Close off this coast are rocks above and below water.

4-209 Skhino Bay, about $1\frac{1}{2}$ miles wide in its entrance, recedes 1 mile southeastward to its head formed by the narrow isthmus connecting the northern and the southern part of the island of Rhenea. A small rocky islet lies eastward of the northern limit of the bay, from which it is separated by a narrow channel with a depth of 3 fathoms. About 500 yards southward of this islet and 400 yards offshore is a 1-fathom rocky patch. Farther southward is a small peninsula, on which stand the buildings of an old quarantine station. A rock nearly awash lies 300 yards northward of a tongue of land extending north-northeastward from the southeastern shore of the bay. A reef extends nearly 200 yards northward from the southern entrance of the bay, which is also the western entrance point of the northern entrance to Dili Strait.

A small wooden landing pier is located on the southern side of the narrow neck of sand connecting the peninsula of the quarantine station to the island. To shelter this pier, a submerged breakwater has been constructed in front of it. The middle and the two extremities of the breakwater are marked by stone pillars. Near this breakwater and beneath the surface of the water lies a rock, which cannot always be distinguished. A boat coming to the pier from the anchorage, after passing the rocks at the southern end of the peninsula, should steer with the western pillar in range with a conspicuous yellow house, and should steer for the pier only after having passed this pillar at a short distance. This will keep a boat outside of the submerged rock previously mentioned.

Fairly well sheltered anchorage from southerly and westerly winds can be obtained

by large vessels southward of the old quarantine station in a depth of 14 to 13 fathoms, with the belfry of a small Greek church in range 269° with the northern part of a conspicuous white building, care being taken to avoid the submerged rock off the southeastern shore of the bay. These range marks are easily distinguished, being the two southernmost white buildings located northward of the isthmus connecting the northern and the southern part of Rhenea Island.

Southward of Skhino Bay the remainder of the eastern coast of the island forms the western shore of Dili Strait, described with the island of Delos.

4-210 DELOS (DHILOS) (MIKRA DELOS) (*middle, $37^\circ 24' N.$, $25^\circ 17' E.$, H. O. Chart 4141*), the island separated from the eastern coast of the southern part of the island of Rhenea by the narrow Dili Strait, extends $2\frac{1}{2}$ miles in a north and south direction and has a maximum width of two-thirds of a mile at its middle part, where also rises Mt. Cynthus (Kinthos), 350 feet high, on which is a charted beacon. The island is unfertile and lacks water. The only inhabitants are the staff of the archaeological museum and shepherds from the island of Mykonos.

In ancient mythology the island of Delos was considered to be the birthplace of Apollo and Artemis, and for this reason it became a sacred island to the ancient Greeks, who gave the name Cyclades to the surrounding islands. At one time the island was a place of importance, and considerable archaeological work has been carried on in past years.

4-211 Coast.—The coast of Delos presents no dangers, the depths being great except for rocks close to the shore. Between Morou Point, the northwestern extremity of the island, and Kako Point, the northeastern

extremity, is the small bay of Khalara, with depths of 11 to 8 fathoms. A sunken rock lies about 300 yards northward of Kako Point. On the eastern side of the island one-fourth of a mile southward of Kako Point is Gournia Bay, and one-fourth of a mile farther southward is Sikia Point, immediately southward of which is the open bay of Sikia, suitable only for temporary anchorage during good weather.

Kherroniso, a small low islet, almost touches the southern extremity of Delos. Granite (Granitis) Point, the southern extremity of this islet, is usually considered the south limit of Delos. Sunken rocks lie as far as 200 yards eastward from this point, and extending 150 yards southward from this same point are sunken rocks and an outermost steep-to rock above water.

4-212 Dili (Dhilos) Strait—Islets.—This narrow strait separates the greater part of the western coast of the island of Delos from the eastern coast of the southern part of the island of Rhenea. The southern part of the strait has a width of one-half of a mile and great depths. In the northern part of the strait are two islets, Rematia (Megalos Rematiaris) and, located 300 yards farther northward, the smaller islet of Little Rematia (Mikros Rematiaris). The museum with a conspicuous roof stands on Delos in a position abreast the latter islet. The channel eastward of these two islets is not navigable, having been partially filled up by the deposits from excavations and by the remains of an unsuccessful attempt to construct a mole. The larger passage westward of these islets has abreast the southern part of Rematia a minimum width of 200 yards and a least depth of 4 fathoms. It is used by small passenger vessels bringing tourists to Delos.

A detached $3\frac{1}{2}$ -fathom patch lies in the southernmost part of Dili Strait in a posi-

tion 300 yards northeastward of Dili Point, the northwestern extremity of the islet of Kherroniso, and 200 yards off the eastern shore of the strait.

4-213 Anchorages.—The best anchorage in Dili Strait is southward of the islet or Rematia in depths of 9 to 12 fathoms, good holding ground of sand, mud, and weeds. This locality is known as Delos Harbor. During a northerly gale in August 1927, the British naval vessel *Broke* anchored with the rock above water at the southern end of the islet bearing 357° , distant 750 yards, and found the bottom of sand and rocks to be good holding ground.

During southerly winds anchorage can be obtained northwestward of the northern end of the islet of Rematia, from which, however, rocks above and below water extend northwestward for a distance of nearly 150 yards.

Current.—During northerly winds a strong current sets southward through Dili Strait.

4-214 MYKONOS (MIKONOS) (*H. O. Chart 4141*), the large irregular island located 16 miles eastward of that of Syra and having the islands of Delos and Rhenea not far westward of it, has a length of 8 miles in an east and west direction and a maximum width of 6 miles in its western part. This hilly island attains its greatest elevations at the northwestern and the eastern part, where the heights are respectively 1,195 and 1,150 feet. The soil is rocky for the most part, and huge blocks of granite are strewn over the hills. The coast, precipitous and irregular, has deep water near it, but in places are numerous rocks and islets, making caution necessary when a vessel is in the vicinity of the coast. The island is indented by several bays, which

afford for the most part good shelter from the prevailing winds.

The population of the island is about 4,200. The greater part of the inhabitants live in the principal town of Mykonos, and the remainder are scattered in Ano Mera, a large village in the hills of the southeastern part of the island, and in other small inland settlements. Numerous isolated churches are scattered over the island. The excellent climate has made the island a place of summer residence. The cultivated areas produce small quantities of grain, grapes, and other products. Cattle are raised in the parts suitable for grazing.

4-215 WESTERN SIDE OF MYKONOS.

—Cape Armenisti ($37^{\circ}29' N.$, $25^{\circ}19' E.$, *H. O. Chart 4141*), the northwestern extremity of the island, is high and precipitous. Besides rocks lying close to the cape, it is fronted by a small rocky islet.

A light is exhibited from an octagonal tower on a dwelling, the whole 62 feet high, located on Cape Armenisti. Gaps in the land occasionally permit the light to be seen from a position southward of the island.

Cape Turla (Tourlos) is located about $1\frac{1}{4}$ miles southward of Cape Armenisti. The small bay immediately northward of this cape is unsuitable for anchorage. A rock above water lies just off the cape.

4-216 Turla Bay (Ormos Tourlos) and The Korpho (Ormos Korfos) are, respectively, the northeastern part and the southern arm of a large bay having a width of 2 miles in its entrance between Cape Turla to the north and Ayios Yeoryios Point to the south. On the eastern shore of this large bay is the town of Mykonos, with its harbor. Ayios Yeoryios Point, the southern entrance point of this bay, is the northern extremity of a narrow peninsula extending $2\frac{1}{4}$ miles in a north and south direction and connected

at its middle part by a low sandy isthmus to the main island.

4-217 St. Georgio (Ayios Yeoryios), a small rocky islet with a church on it, is located 120 yards northward of Ayios Yeoryios Point, from which it is separated by shallow water. Shallow water also extends 100 yards from the islet except on its northeastern side, where the depths are considerable. Kavouri, a much smaller rocky islet, lies 300 yards northwestward of that of St. Georgio, from which it is separated by a channel having a least depth of $4\frac{1}{4}$ fathoms in mid-channel. Depths of less than 3 fathoms extend 150 yards northward, 50 yards eastward, and 50 yards southeastward from this islet, off the northern end of which are rocks above and below water. Two detached rocky patches, each with a depth of 1 fathom, lie south-southwestward of the islet of Kavouri at distances of 400 and 600 yards, respectively. These two patches are difficult to distinguish.

From Cape Turla the shore of this large bay trends first 1 mile southeastward and then nearly 1 mile southward to the harbor at the town of Mykonos. It is clear of dangers, and in places the 3-fathom curve is as far as 150 yards offshore. Turla Bay is that part of this large bay where the shore turns. On that part of the shore trending in a southeasterly direction stand two churches, the western one being at the sandy head of a small shallow cove open to the southward. Turla Bay is open to the west and southwest, but affords good shelter from northeasterly winds, especially in the summer. The best berth is 300 yards west-southwestward of the eastern church in depths of 8 to $5\frac{1}{2}$ fathoms, sand. Drinking water may be obtained from a well near the church.

4-218 The harbor at the town of Mykonos is a small circular basin available

only for small craft. It is formed by a breakwater extending 200 yards northward from the northwestern part of the town and another breakwater northward of the latter, extending west-southwestward from the coast. Anchorage may be taken, in an approximate position, 150 yards westward of the northern breakwater. The depths are over 6 fathoms for a short distance within the entrance, but then shoal suddenly to less than 3 fathoms. On the northeastern entrance point stands a conspicuous ruin, and close southward on the eastern shore is the small settlement of Kamenaki (Kaminakia).

The harbor is subject to northeasterly winds, especially during the summer; vessels than take anchorage at either Turla Bay or The Korpho.

The Korpho recedes 1 mile southward from the town and decreases gradually in width, being about 400 yards wide in its southern part. The 3-fathom curve is 250 yards off the low sandy beach at the head. The eastern shore is precipitous. A church stands on the western shore where it turns sharply to the south, and northward of this church and within the 3-fathom curve is a group of large rocks. A submarine pipeline extends from a point on shore, about 656 yards northeastward of the above mentioned church, west-northwestward for about 120 yards. Two light buoys mark the seaward end of the pipeline. Some isolated houses stand at the head, where there is a well of drinking water. This bay affords refuge from all winds but those from the north. A vessel can drop her anchors in depths of 13 to 12 fathoms abreast the point projecting from the middle of the eastern shore. Small craft can proceed farther in, anchoring in depths of 5 to 3 fathoms and securing their sterns to the shore.

4-219 A light is shown from the head of each breakwater at Mykonos.

4-220 Mykonos (Mikonos) ($37^{\circ}27' N.$, $25^{\circ}20' E.$, *H. O. Chart 4138*), the capital and principal town of the island, has a population of about 4,200. Although the town presents nothing of interest, it is a summer

resort on account of its climate. The town has telegraphic, postal, and customs facilities, and, being the only port for the island, it is visited regularly by coastal steamers. Limited quantities of vegetables and citrus fruits are available.

4-221 Coast.—The southern part of the western coast of the island of Mykonos is clear of dangers. It terminates in Alogo (Alogomandra) Point, the steep-to and precipitous southwestern extremity of the island. Between $\frac{1}{2}$ to $1\frac{1}{2}$ miles northward of Alogo Point this coast is indented by a bay receding as far as 800 yards in an easterly direction. The depths in the bay are 18 to 5 fathoms, but shallows extend nearly 300 yards northward from the southern entrance point. A church stands on the northern shore.

4-222 Strait—Current.—The southwestern part of the island of Mykonos is separated from the northern part of the island of Delos by a strait having a width of $1\frac{1}{2}$ miles. The Praso Islets lie in the southern approach to the strait, and the only danger is a sunken rock in their vicinity. The fairway on either side of the islets is easy to navigate.

A light is shown on the western side of the northwesternmost islet.

During northerly winds a strong current sets southward between the Praso Islets and the island of Delos.

4-223 Southern side of Mykonos.—Praso Islets ($37^{\circ}23' N.$, $25^{\circ}19' E.$, *H. O. Chart 4141*), located one-half of a mile south-southwestward of Alogo Point, are three islets lying close to each other. A rock with a depth of 1 fathom lies 600 yards east-southeastward of the southwesternmost and smallest islet; elsewhere the depths near the islet are great.

4-224 Coast.—Between Alogo Point and Glossidha Point, one-half of a mile east-northeastward, the southern coast is indented by the small bay of Glifadha, open to the south. The depths in the bay are 8 to $3\frac{3}{4}$ fathoms, and shallows extend offshore for only a short distance.

4-225 Port Ornos, located immediately eastward of Glossidha Point, has a length of nearly 1 mile in a northerly direction from its entrance, where its width is also nearly 1 mile. From the entrance the width narrows gradually toward its innermost part having a length of 500 yards and a width of 300 yards. On the western side of the bay are two projecting headlands, and a detached rocky patch with a depth of $1\frac{3}{4}$ fathoms lies 200 yards eastward of the southern headland. The eastern side of the bay is precipitous, and 400 yards off this side in the entrance is the small rocky islet of Lazaro. The islet is separated by great depths from the shore, but has shoal depths extending 100 yards southward from it.

Small vessels can obtain anchorage in the innermost part of Port Ornos, where the depths are $6\frac{1}{2}$ to $3\frac{1}{4}$ fathoms, good holding ground. Northerly winds during the winter and northeasterly winds during the summer sometimes blow so hard that communication with the shore is impossible. The depths in the outer part of the bay are more than 16 fathoms, unsuitable for anchoring.

4-226 Coast.—Agrelos (Agrilos) Point, located 1 mile east-southeastward of the eastern entrance point of Port Ornos, is the southern extremity of a conspicuous small peninsula. A small islet and rocks lie close southward of this point.

A bay clear of dangers is located on either side of Agrelos Point. The western bay recedes 600 yards northeastward from its entrance with a width of 800 yards, and has depths of about 11 fathoms, sand. The east-

ern and smaller of the two bays is open to the south-southeast and has depths of 7 to 2 fathoms in its inner part. Another small bay or inlet is located 1 mile east-northeastward of Agrelos Point. Open to the south-east, this bay is 400 yards wide in the entrance, recedes 650 yards, and has depths of $4\frac{1}{4}$ to 2 fathoms.

Santa Anna (Ayla Anna) Bay, located $2\frac{1}{2}$ miles east-northeastward of Agrelos Point, is $1\frac{1}{4}$ miles wide in its entrance between Makrokephalo (Makrokefalos) on the southwest and an unnamed point to the northeast. Makrokephalo, high and precipitous, is the southern extremity of a peninsula forming the western shore of the bay. In the middle of the entrance are two rocky islets, which can be passed on either side. During northerly or westerly winds vessels can anchor 1 mile north-northeastward of Makrokephalo in depths of 10 to 9 fathoms, sand. Farther southward of this berth at the head of the bay the bottom is composed of rocks and is unsuitable for anchorage. A small pier for loading ore is at the northeastern part of the bay.

Tershana (Tarsanas) Point, 600 yards northeastward of the northeastern limit of Santa Anna Bay, is a conspicuous and high extension connected to the main island by a narrow neck of land. A very small cove with depths of 3 fathoms is on the southern side of the neck, but on the northern side of Tershana Point is a wider bay open to the east. The inner part of this latter bay is shallow and full of rocks above and below water.

Goni Point, located $1\frac{3}{4}$ miles east-northeastward of Tershana Point, is the southeastern extremity of the island of Mykonos. Within this point rises a small hill. Depths of 3 fathoms and less extend about 400 yards offshore at this point and its vicinity.

4-227 EASTERN AND NORTHERN SIDES OF MYKONOS—OFF-LYING ISLANDS.—**Dragonisos (Dhragonisi)** (*37°27' N., 25°30' E., H. O. Chart 4141*), an island $1\frac{1}{4}$ miles long in a north and south direction, one-half of a mile wide, and 585 feet high, lies three-fourths of a mile eastward of the southern half of the eastern coast of the island of Mykonos. The passage between them is deep in midchannel and clear of dangers. Rocks above and below water lie as far as 400 yards off the western coast of this island, and also extend 500 yards northward from it. The depths are great near the eastern and the southern side of the island.

4-228 Stapodia (Khtapodhia), the narrow islet located 4 miles east-southeastward of Dragonisos, has a length of 1,600 yards curving from west to north. A reef with rocks above water extends another one-half of a mile northward from the northern end of this islet, and a detached rock above water with a sunken danger close westward of it lies 400 yards westward of the western end of the islet. Although all these dangers off the islet are easily seen during the day, the islet should be given a berth of 1 mile.

A light is shown from a truncated iron pyramid, 13 feet high, on Stapodia Islet.

4-229 Coast.—From Goni Point the eastern coast of the island of Mykonos trends 2 miles northward to Euro (Evros) Point, the northeastern extremity of the island. Backed by one of the high summits of the island, this uninhabited coast is clear of dangers except for the shoal water previously mentioned with Goni Point and two above-water rocks lying 400 yards north-eastward of Euro Point.

Beyond Euro Point the northern coast of the island trends 4 miles west-northwestward to Port Panormos. It is indented by two small bays both open to the north and northeast. The bays have great depths with rocks above water near the shore, but they are considered unsuitable for anchorage.

4-230 Port Panormos, the large and uninhabited bay on the northern side of the island of Mykonos, has an entrance exceeding one-half of a mile in width and a southerly penetration approaching 2 miles in length. The depths in the entrance are over 27 fathoms, shoaling gradually toward the head, where the 5-fathom curve is 600 yards offshore. The high and precipitous eastern shore has near it deep water except for a sunken rock lying three-fourths of a mile within the eastern entrance point and 200 yards offshore. The western shore is rather irregular, and an islet, several large above-water rocks, and sunken rocks lie as far as 500 yards off the northern half of this shore.

Although the usefulness of Port Panormos is not great, vessels could use it as a shelter from southerly winds in the winter. Vessels should keep to the axis or to the eastern side of the bay.

Coast.—From Port Panormos the northern coast, high, precipitous, and steep-to, trends $2\frac{1}{4}$ miles in a westerly direction to Cape Armenisti (sec. 4-215). About three-fourths of a mile west-northwestward of Port Panormos is Arkto Point, the northernmost point of the island.

4-231 Mykonos (Mikonos) Strait, the deep passage between the northwestern extremity of the island of Mykonos and the southeastern extremity of the island of Tinos, has a width of $4\frac{1}{2}$ miles and is clear of dangers. Vessels must guard against squalls from the high land. When the wind is blowing hard from the northward, vessels prefer this strait over Doro (Kafirevs) Channel, where the current is very much stronger.

4-232 TINOS (*H. O. Chart 4141*), the large island located $4\frac{1}{2}$ miles northwestward of that of Mykonos, from which it is separated by Mykonos Strait, extends about 15 miles in a northwesterly and southeast-

erly direction and has a maximum width of $6\frac{1}{2}$ miles in its southeastern half and a minimum width of 1 mile at its northwestern end. This mountainous island attains its greatest elevation of 2,340 feet in Mt. Skhionia (Tsikinias), located about midway along the eastern coast; another high summit is Mt. Kolembo (Polemon Kambos), 2,090 feet high, located about midway along the southwestern coast. The depths are great at a short distance off the island and are free of dangers. The island lacks good ports, the bays on its northern side being rather unsuitable for anchorage.

Along the eastern and the southern coast of the island of Tinos the northeasterly winds of summer sometimes blow with fury. An infallible sign is a white cloud upon the peak of Mt. Skhionia, after the appearance of which the wind does not delay long to blow with strength, rendering it impossible to remain at anchor.

The island of Tinos has about 11,250 inhabitants, who live in the principal town of Tinos and in other settlements along the coast and in the interior. The level areas between the heights are cultivated and produce grain, olives, grapes, figs, and vegetables. The cattle industry is considerably developed, and the beekeeping industry has a large yield of honey and wax. The island has a large tourist trade, the people either coming for the climate or to visit the celebrated Church of Evangelistria at the town of Tinos.

4-233 SOUTHERN AND SOUTHWESTERN SIDES OF TINOS.—Cape Joannis (Ayios Ioannis) ($37^{\circ}32' N.$, $25^{\circ}15' E.$, *H. O. Chart 4141*), the southeastern extremity of the island of Tinos, is high, precipitous, and clear of dangers. During northeasterly, northerly, or northwesterly winds small vessels can obtain anchorage in the lee of this cape in depths of 7 fathoms. A sailing

vessel may find it impossible to reach this anchorage on account of the heavy squalls that come down from the highland.

4-234 Coast.—About one-half of a mile southwestward of Cape Joannis is a small and high headland, and one-half of a mile farther southwestward and one-fourth of a mile offshore are the Blabi (Vlandoi) Rocks, barely above the surface of the sea. These rocks are connected by shallow depths to the coast but have great depths close seaward. About $1\frac{1}{4}$ miles west-southwestward of Blabi Rocks is Urio (Ourio) Point, the southernmost point of the island.

Nikolo (Ayios Nikolaos) Bay, about 1 mile wide in its entrance between Urio Point to the east and Cape Akroteri to the west, reaches about 500 yards in a northerly direction. The 3-fathom curve is 150 yards offshore, and the 5-fathom curve is 250 yards farther out. Cape Akroteri is a small peninsula rising to a height of 108 feet. A conspicuous tomb stands on Cape Akroteri and a rock, Nisis Elli, is located close westward of the southern extremity of the cape. The land at this bay is cultivated, and about one-half of a mile northeastward of Cape Akroteri stands the conspicuous church of Ayios Fokas.

4-235 Anchorage.—Nikolo Bay can be used as a refuge from northerly winds. It is convenient for vessels bound northward through Mykonos Strait, or can be used temporarily during a northerly gale by a vessel bound for the island of Syra. About 400 yards offshore is a good berth in depths of 8 fathoms, sand and weeds, with the church of Ayios Fokas bearing 341° and the southern extremity of Cape Akroteri, 273° . Farther out is another berth in depths of 10 to 14 fathoms, clay, with the spire of the Church of Evangelistria in the town of Tinos bearing 331° and the southern extremity of Cape Akroteri, 293° . Although the force of the wind in Nikolo Bay is consider-

ably less than that in the surrounding area, a vessel must be ready for squalls by veering a good scope of chain.

4-236 Tinos Harbor ($37^{\circ}32' N.$, $25^{\circ}10' E.$, *plan on H. O. Chart 4141*), located close north-northwestward of Cape Akroteri, is a small artificial harbor, which affords shelter to small vessels from all but westerly winds. The harbor is enclosed by two breakwaters, the southern one extending 500 yards in a northwesterly direction and the northern one extending 150 yards southward from the middle of the quayed southern shore of the town. The inner side of the northern breakwater is quayed with a depth of 21 feet alongside the outer portion. A jetty with a depth of 16 feet alongside its face extends from the shore close eastward of the northern breakwater. Open to the west, the entrance is 185 yards wide and has depths of 6 to 8 fathoms in the fairway. Inside the harbor are depths of less than 3 fathoms extending off the northeastern shore; this distance decreases toward the south along the eastern shore. Depths of 2 to 15 feet are found next to the northeastern side of the southern breakwater. The anchorage area with depths of more than 3 fathoms in the southwestern part of the harbor is only about 200 yards in diameter.

4-237 Landmarks.—Oxoburgo, located $2\frac{1}{2}$ miles northward of the harbor and consisting of a precipitous granite cone surmounted by a white cross, is visible from far out at sea. The large white church of Evangelistria with a conspicuous belfry is located at the northern end of the town.

A light is shown from the head of the southern breakwater.

Another light is shown from the head of the north jetty.

4-238 Anchorage.—Vessels can anchor about one-fourth to one-half of a mile westward of the harbor entrance in depths of 16 to 20 fathoms, mud. This anchorage is exposed to the prevailing winds and is not considered good. Anchorage may also be taken about 300 yards southward of the breakwater in 15-20 fathoms sand and weeds.

4-239 Tinos, the capital and the principal town with a population of about 3,200, is built mostly on the northern side of its harbor. Through the middle of the town a steep street leads to the celebrated Church of Evangelistria, located close northward of the town at an elevation of 223 feet. Built of white marble, it forms with its courts and schools a picturesque group of buildings, having an imposing appearance from the sea. As this church attracts thousands of worshipers each year, the tourist interest is considerably developed, and the town has several modern hotels. A factory has a large output of talc powder.

Provisions and drinking water are available. The town has telegraphic, postal, and custom facilities. Coastal steamers make regular calls. There is a 15-bed hospital.

4-240 Stauro Bay (Ormos Stavros), entered more than one-half of a mile north-westward of Tinos Harbor, is about 1 mile wide in its entrance open to the south. The depths in the bay are 19 to 10 fathoms, and shallow depths extend about 300 yards or more from the northern shore. The western entrance point is a small conspicuous and precipitous peninsula extending 650 yards in a south-southeasterly direction. Along the eastern shore of the bay is a small cove sheltered from southerly winds by a small mole. Only small craft can find refuge behind the mole, larger vessels anchoring outside. As the holding ground outside the mole is not very good, and the area is subject to strong northerly winds, vessels must use a good scope of chain; vessels have dragged even with two anchors down.

Submarine cables.—Submarine telegraph cables are landed in the small shallow cove

located immediately eastward of Stavros Point, the eastern entrance point of Stauro Bay.

4-241 Coast.—About 1 mile west-northwestward of Stauro Bay is Zephyros (Zefiros) Point, a conspicuous point with precipitous sides clear of dangers. At Zephyros Point the southwestern coast turns northward, trending 1 mile in this direction, after which it again trends northwestward for a distance of 9 miles to the northwestern end of the island. Along this coast are small bays, open to the southwestward and unsuitable for anchorage, the only one worth mentioning being that of Isternia.

Isternia Bay is immediately southeastward of Kisterni (Isternia) Point, located 5 miles northwestward of Zephyros Point. Depths of less than 3 fathoms extend 100 yards from the shore of this bay. At the head of the bay is a small settlement with a basin and a mole, both only for boats. This settlement is connected by road with the inland town of Isternia. Marble is shipped from Isternia Bay, and coastal steamers call regularly.

4-242 Steno (Dhisvaton) Pass ($37^{\circ}41' N.$, $24^{\circ}59' E.$, *plan on H. O. Chart 4121*), separating Peirati (Perati) Point, the northwestern extremity of the island of Tinos, from Steno Point, the southeastern extremity of the island of Andros, is 1,600 yards in width, but its free opening is reduced to a width of 1,200 yards by the Dysvaton (Dhisvaton) (Kaloyeroi) Islets, located in the southwestern part of the pass. The inner and larger of these two islets is 190 feet high. The navigation of this deep pass along its axis in a northeasterly or southwesterly direction presents no difficulties, but the points on either side, especially Steno Point, should not be approached too closely. During northerly winds the current sets southwestward. A low-powered steamer

bound northeastward during fresh northerly winds should prefer this pass over Doro (Kafirevs) Channel, where the current is considerably stronger.

A light is exhibited from a square masonry tower on a similar dwelling, the whole 30 feet high, located on the outer of the Dysvaton Islets.

4-243 NORTHERN AND EASTERN SIDES OF TINOS—*Coast (H. O. Chart 4141).*—From its western limit, Peirati Point, the northern coast of the island of Tinos trends about $3\frac{1}{4}$ miles eastward to Cape Axinos, where it turns southward toward Port Panormos. Throughout this whole stretch the coast is precipitous, steep-to, and clear of dangers, and the several bays indenting it have great depths for the most part and are unsuitable for anchorage.

4-244 Port Panormos, the bay located $1\frac{1}{2}$ miles southward of Cape Axinos, is the only bay on the northern side of the island that affords some shelter from northerly winds. Open to the east-northeast, the bay has the outer part of its northern side formed by Planumi (Planitis) Islet, the coast of which is clear of dangers. A light is shown on the islet. The depths in the greater part of the bay are over 16 fathoms, and the principal anchorage suitable for only small vessels is in the inlet on the western side of the bay. At this inlet is a small settlement, the port for the inland town of Pyrgo (Pirgos). Pyrgo has telegraphic facilities. Communications by sea are maintained with Piraeus and with neighboring islands. Marble is shipped from Port Panormos.

Beacon.—A stone beacon having the shape of a truncated cone on a circular base marks a rocky reef in the northwestern part of Port Panormos.

4-245 Coast.—From Port Panormos the northern coast with great depths close off it trends $9\frac{1}{2}$ miles in a general east-southeasterly direction to Livada (Livadha) Point, the northeastern extremity of the island. This uninhabited and inhospitable coast is indented by two bays, Port Kolumpetro and Port Livada, both open to the north.

Port Kolumpetro (Kolymvithra) is located $3\frac{1}{2}$ miles eastward of Port Panormos, and the most projecting part of the coast between them is Cape Siago. The bay is one-half of a mile wide in the entrance, recedes two-thirds of a mile in a southerly direction, and has depths of 16 to 10 fathoms. A small rocky islet lies 600 yards offshore in the northwestern approach to the bay. The head and the eastern shore of the bay are furthermore indented by small inlets with depths of 3 fathoms. This bay is unsuitable for anchorage during northerly winds in the winter and the etesians in the summer. Inland of the bay is the village of Katakisma.

Port Livada (Livadha), located $4\frac{1}{2}$ miles east-southeastward of Port Kolumpetro and one-half of a mile westward of Livada (Livadha) Point, has depths of 6 to 3 fathoms and is clear of dangers. It is unsuitable for anchorage under the same conditions as those given for Port Kolumpetro.

A detached rocky patch with a depth of 1 fathom lies in the northeastern approach to Port Livada in a position 650 yards northwestward of Livada Point.

From Livada Point the eastern coast of the island of Tinos trends $4\frac{1}{2}$ miles southward to Cape Joannis (sec. 4-233). This uninhabited stretch of the coast is clear of dangers, and inland of its middle part rises the summit of the island.

A light is exhibited from a square tower at the eastern end of the keeper's dwelling on Cape Livada.

4-246 Currents.—In August 1916 the current in a position 6 miles northward of the island of Tinos was observed to set south-southeastward at a rate of $1\frac{1}{4}$ knots with light to moderate southerly winds, and at a rate of $1\frac{1}{2}$ knots with light winds from the northward.

In November 1916 the current in a position between the island of Andros and that of Nikaria (sec. 8-170) was observed to set south-southeastward at a rate of one-fourth of a knot with a gentle breeze from the north-northwest, the wind for the previous 24 hours having been fresh from the east.

4-247 ANDROS (*H. O. Chart 4121*), the northernmost island, as well as one of the largest, of the Cyclades, is separated from the island of Tinos to the southeastward by Steno Pass (sec. 4-242), and from the very large island of Euboea (Evvoia) to the northwestward by Doro (Kafirevs) Channel (sec. 4-260). This large island extends 21 miles in a north-northwesterly and south-southeasterly direction and has a maximum width of 8 miles in its middle part. The watershed of this mountainous island trends the length of this island in the southwestern part and has ridges extending from it in a northeasterly direction.

The island attains its highest elevation of 3,097 feet in the peak of Petalon, located in the middle of the island; Mt. Kovari (Kouvarion), located southwestward of Petalon and a short distance within the middle of the southwestern coast, rises to a height of 3,271 feet. In the northwestern part of the island is Mt. Sarandi (Ayioi Saranda), 2,340 feet high, and in the southeastern part is Mt. Aranka (Profitis Ilias), 2,250 feet high. These summits are covered with snow for several months in each year.

The valleys and plateaus of the island are cultivated, the principal products being

grain, grapes, olives, and vegetables. Cattle are raised and give a good yield of butter and cheese. The island has many mines, but only manganese was being mined in 1938. Manufacturing has a purely local character, and imports are limited to local needs.

The population numbers about 17,600 inhabitants, who live in the capital and in other settlements along the coast and in the interior. The roads of the island are not developed, one road running from Port Kastro, via Karko Bay, to Gavrion Bay, and a secondary road running from Post Kastro to Kordion Bay. The larger settlements have telegraphic service, and a considerable telephone network covers the island.

4-248 SOUTHWESTERN SIDE OF ANDROS—General remarks.—Having a length of more than 16 miles between Steno Pass and the northwestern limit of Gavrion Bay, the southwestern coast of the island of Andros is precipitous for the most part and sparsely inhabited. It is very irregular, but has near it great depths clear of dangers. As this coast is backed by mountains, heavy squalls are encountered near it during northeasterly winds, especially during the etesians in the summer.

4-249 Coast.—Plaka Cove ($37^{\circ}46' N.$, $24^{\circ}53' E.$, *H. O. Chart 4121*) is located 6 miles northwestward of Steno Point, the southeastern extremity of the island, and about midway along the intervening coast is Petrokathi Head, within which rises a small hill. Open to the southwest, the bay has considerable depths without dangers. Eastward of Zagora Point, the northwestern limit of the bay, the northern shore is indented by several small coves, and the depths at a short distance off them are suitable for small craft to take refuge from northeasterly winds.

Between Zagora Point and Strophilo (Strofila) Point, 1 mile northwestward, the

coast is indented by a bay open to the southwest. The bay is unsuitable for anchorage.

Karko (Khalkolimninos) Bay, located between Strophilo Point and Thurida Point, $1\frac{3}{4}$ miles northwestward, is open to the southwest. The bay has considerable depths without dangers. As this bay has the highway between Port Kastro and Gavrion Bay passing by its head, it is used sometimes by vessels unable to put into Port Kastro on account of weather conditions.

Palæopolis Bay, formed between Thurida Point and Thiakion Point, $1\frac{3}{4}$ miles northwestward, is open to the southwest and south. The bay has considerable depths clear of dangers, being practically unsuitable for anchorage. Thiakion Point is the extremity of a small, narrow peninsula trending in a southwesterly direction, and inland of this peninsula is the highest part of the island. On the eastern side of the bay is the village of Palaïoupolis, as well as the remains of ancient harbor works; the ruins of ancient Andros are on the northern side.

Leukos Bay, located $2\frac{1}{2}$ miles north-northwestward of Thiakion Point, is entered eastward of Cape Colonna, the southeastern limit of Gavrion Bay. About 650 yards wide in the entrance, this small bay recedes a similar distance in a northerly direction, and has depths of 8 to 5 fathoms, the 3-fathom curve being 200 yards off the low shore at the head. Sheltered from easterly, northerly, and westerly winds, the best berth is 400 yards northeastward of Cape Colonna in depths of 8 to 5 fathoms, sand.

4-250 Leukos (Batsi), a settlement of about 550 inhabitants, is built on the eastern side of Leukos Bay. There is a short pier on the eastern side of the bay with a depth of 20 feet, at the inner side of its head; the outer side of the pier consists of stone blocks. Water of good quality is available. The settlement has telegraphic, postal, and custom facilities, and coastal steamers make regular calls.

4-251 GAVRION BAY (ORMOS GAVRIOU) (*middle, 37°52' N., 24°45' E., plan on H. O. Chart 4121*), a large bay open to the south, is $3\frac{1}{4}$ miles wide in its entrance between Cape Colonna (Kolona) to the east-southeast and Goremi (Kakogremi) Point to the west-northwest. The bay contains several smaller bays separated by projections. A group of islets fronts the middle part of the entrance, and in the bay in a position northward of these islets is a detached dangerous shoal. The entire bay affords good anchorage during northerly winds, and one of the smaller bays affords complete safety from all winds. A light is shown on Cape Colonna.

4-252 Islets and dangers.—Megalo Islet, the largest and southeasternmost of the islets fronting the entrance to Gavrion Bay, lies $1\frac{1}{3}$ miles westward of Cape Colonna, the intervening depths between them being great and clear of dangers. This hilly islet extends two-thirds of a mile in a north and south direction, has an average width of 200 yards, and rises to height of 190 feet in its southern part. Shallow depths of 3 fathoms or less extend from the precipitous coast, the distance nowhere exceeding 100 yards.

Praso (Prasso), a small islet 32 feet high, is located 300 yards westward of the northern third of Megalo Islet, from which it is separated by depths of 10 to 8 fathoms. In the northern part of the passage separating them is a detached $2\frac{3}{4}$ -fathom rocky patch, located in a position 150 yards westward of the northern extremity of Megalo Islet. Shallow depths of 3 fathoms or less extend 150 yards both southward and northward from Praso.

Akomates (Akamatis), another small islet 68 feet high, lies 300 yards northwestward of the northern extremity of Megalo Islet, and in the southern part of the passage with general depths of 5 fathoms that separates them is the preceding detached $2\frac{3}{4}$ -fathom

rocky patch. The middle of the passage between Akomates and Praso, 300 yards southward, has depths of less than 5 fathoms. Nowhere do depths of 3 fathoms or less extend more than 100 yards from Akomates, and a small rock above water lies close off the western side of the islet.

Plati, a small rocky islet 18 feet high, lies one-third of a mile west-northwestward of that of Akomates, from which it is separated by depths of 5 to 12 fathoms. A rock above water lies close off the eastern side of the islet. A rocky shoal with a least depth of $1\frac{3}{4}$ fathoms near its extremity extends about 300 yards northward from Plati, and about one-third of a mile farther northward is the southern extremity of Vovi Shoal, the depths between them being great.

4-253 Gaidaro (Gaidharos) Islet, rocky and 121 feet high, lies 800 yards westward of that of Praso and 700 yards south-southwestward of that of Plati, being separated from both of them by deep water. A detached $2\frac{1}{2}$ fathom rocky patch lies 200 yards northward of Gaidaro Islet.

Turleta (Tourleta), a rock 46 feet high, is found one-fourth of a mile south-southwestward of Gaidaro Islet, and between them are two other rocks above water. The depths around these three rocks are great.

In general there is no reason to pass through the passages formed between the preceding islets that front the entrance to Gavrion Bay. A vessel bound to Petros Bay could use the passage formed between the islets of Praso and Akomates on the east and the islets of Gaidaro and Plati on the west, taking care after passing the islet of Plati not to turn to the westward on account of the shoal extending northward from Plati and the dangerous Vovi Shoal.

4-254 Vovi (Vouvi) Shoal, lying with its southern extremity about 1,200 yards south-southeastward of the eastern entrance point

of Port Gavrion, extends about 500 yards in a north and south direction. A rock with a depth of less than 6 feet lies at the southern and the northern end of this shoal, and the other depths on the shoal between these two rocks vary from $1\frac{3}{4}$ to $2\frac{3}{4}$ fathoms. The passage between the northern end of Vovi Shoal and the eastern entrance point of Port Gavrion has deep water except for Black (Rossa) Rock, a detached above-water rock lying 200 yards southeastward of the latter point.

The summit of the island of Jura (sec. 4-205) bearing 181° and open westward of Gaidaro Islet, or the rock of Turleta bearing 186° and just open westward of Gaidaro Islet, leads westward of Vovi Shoal. The monastery located on an inland hill about 1,200 yards eastward of Phurnos Bay bearing 068° and just open southeastward of Koruni Head, the western entrance point of Phurnos Bay, leads through the passage southward of Vovi Shoal.

4-255 Phurnos (Fournos) Bay, located $1\frac{1}{4}$ miles northeastward of Megalo Islet, is the northeastern part of Gavrion Bay. Koruni (Kourouni) Head, the western entrance point of Phurnos Bay, is the southern steep-to extremity of a conspicuous, precipitous, narrow peninsula extending 500 yards in a southerly direction and surmounted by a hill. Open to the south, this bay does afford excellent refuge from northeasterly and northerly winds. From the sandy shore of the recess, low for the most part, depths of less than 3 fathoms extend 200 yards offshore, and farther off the depths are 5 to 9 fathoms. Anchorage can be taken in a suitable depth, the bottom of sand being good holding ground.

Petros (Ayios Petros) Bay, the middle one of the three bays on the northern side of Gavrion Bay, is limited to the east by the peninsula terminating in Koruni Head and

to the west by Akra (Marmara) Point, the eastern entrance point of Port Gavrion. The western half of the shore of this bay consists of gravel beaches separated by rocky points, and rocky shallows extend offshore as far as 350 yards. Black (Rossa) Rock is already mentioned with Vovi Shoal, and a rock with a depth of 6 feet lies 1,200 yards eastward of Akra Point and 300 yards offshore. The eastern part of the shore at the head of this bay is a low sandy shore with the 3-fathom curve about 200 yards offshore. The depths in the outer part of the bay are 5 to 8 fathoms, sand and weeds. The bay affords anchorage sheltered from northerly winds, and during southerly winds the swell from this direction is partly broken up by the islets fronting the entrance to Gavrion Bay.

4-256 Port Gavrion, the westernmost of the three smaller bays indenting the northern side of Gavrion Bay, recedes two-thirds of a mile in a northerly direction and has an average width of 500 yards. The depths decrease gradually from 10 fathoms in the entrance to the 3-fathom curve located 200 yards off the low sandy beach at the head and 250 yards off the eastern shore of the inner half of the bay, this same curve elsewhere being about 100 yards offshore. Kastri Head, the western entrance point, is a conspicuous, high, precipitous headland projecting 300 yards southeastward from the coast.

A light is shown on Kastri Head, and another light is shown on Akra Marmara, the eastern entrance point of Port Gavrion.

4-257 Anchorage.—Port Gavrion affords shelter from all winds; although it is open to the south, winds and swell from this direction never reach home on account of the islets that front the entrance to Gavrion Bay. During strong northerly winds squalls descend from the high land. A good berth for a small vessel is in depths of $3\frac{3}{4}$ to $4\frac{1}{4}$

fathoms about 300 yards westward of the small pier at the village located on the eastern side of the inner part of the port.

Pilotage is compulsory for Gavriion Bay.

4-258 Directions.—If bound for the anchorage at either Phurnos Bay or Petros Bay, a vessel coming from the south should pass eastward of the group of islets that fronts the entrance to Gavriion Bay. If coming from the westward, a vessel should pass 200 to 300 yards south of Black (Rossa) Rock in order to avoid Vovi Shoal, and, if bound for Phurnos Bay, she should then steer for a position close southward of Koruni Head. Only by day can a vessel bound for Phurnos Bay pass southward of Vovi Shoal, the range for clearing this side of the shoal being given with the description of the shoal.

Port Gavriion presents no difficulties if a vessel steers along the axis and does not approach the shores too closely. The best approach is from the west or southwest.

4-259 Gavriion, a village of about 350 inhabitants, is built on the eastern side of the inner part of Port Gavriion. A pier projects about 100 yards westward from the quayed shore. The outer 55 yards, on either side, has been dredged to a depth of 15 feet. Provisions and water are available in small quantities. The village has telegraphic, postal, and custom facilities. Coastal steamers make regular calls.

4-260 DORO CHANNEL—WESTERN AND NORTHWESTERN SIDES OF ANDROS.—Doro (Kafirevs) Channel ($37^{\circ}58' N.$, $24^{\circ}38' E.$, *H. O. Chart 4121*), about 6 miles wide in its narrowest part, is located between the western and the northwestern coast of the northwestern part of the island of Andros to the southeast and the eastern coast of the southeastern part of the island of Euboea to the northwest. The depths in the strait and along its shores are great. The northwestern part of the island of Andros has an arid and rocky appearance,

while on the contrary the southeastern part of the island of Euboea is wooded.

The navigation of Doro Channel is difficult for low-powered vessels and sailing vessels on account of strong currents and northerly winds, especially during the summer months. Vessels unable to pass through the channel in a northeasterly direction and having to seek shelter from strong northerly winds are advised to seek shelter in either Gavriion Bay or Karystos Bay. Vessels in the previously mentioned category should prefer to pass through Steno Pass, or even Mykonos Strait, in either case passing southward of the island of Zea.

The western shore of Doro Channel is described in section 6-1.

4-261 Winds and current.—Doro Channel ought to be considered as one of the most unfavorable regions of the Aegean Sea for navigation. The channel is open to northerly winds, which locally possess great frequency and permanency. Whenever bad weather from the north prevails throughout the whole Aegean Sea, the wind blows in the channel with great strength; southerly winds rarely blow and can be considered as favorable. Throughout the winter and summer, from November to March and particularly from May to September, there is the greatest likelihood of northerly winds. Often during summer local northerly winds blow with great strength in the channel when good weather conditions prevail in the neighboring regions (Gulf of Athens, Mandri Channel, Zea Channel); it is common for a vessel to pass Cape Colonna in the forenoon with a fresh breeze from the Gulf of Athens and experience this breeze as far as the northern end of the island of Zea, where the vessel meets a strong breeze blowing through Doro Channel.

The current in Doro Channel sets always toward the south, and its velocity depends

on the winds blowing at the time. The velocity diminishes a little whenever extremely bad weather from the south prevails in the whole Aegean Sea. Under normal conditions the velocity, due to the constant current toward the south from the Dardanelles, is 2 to 3 knots. With unusually bad weather from the north, a vessel experienced a southerly set of 7 knots.

In 1955, a ship northward bound through Doro Channel encountered rough northerly seas and northerly winds up to 40 knots. However, only about 3/10 knot of current was experienced; this was believed to have resulted from laying a course within one mile of the western shore.

In August 1916 the current at a position 6 miles northward of the island of Andros was observed to set south-southeastward with a velocity of $1\frac{1}{4}$ knots during light to moderate southerly winds, and with a velocity of $1\frac{1}{2}$ knots with light airs from the north.

In September 1916 the current between Doro Channel and Zea Channel was observed to set northwestward at a rate of three-fourths of a knot during a light southerly breeze.

4-262 Western coast of Andros.—This coast of the island trends 6 miles northward from Goremi Point, the southeastern limit of Doro Channel, as well as the western entrance point of Gavriion Bay, to Cape Phassa (Fassa), the northwestern extremity of the island. Practically uninhabited, this irregular coast is cliffy, steep-to, and indented by a few small sandy bays.

Syriki (Siriki) Bay, the small bay located one-half of a mile northward of Goremi Point and open to the west, is backed by Mt. Koraka (Karakas), 725 feet high. Thelo (Fellos) Bay, the small bay entered 800 yards northward of that of Syriki and limited 1 mile farther to the northward by Cape Thelo, has depths of less than 5 fathoms at its inner part, where is located the small community of Fellós. Cape Nikolo (Nikolaos), located $1\frac{1}{2}$ miles north-northwest-

ward of Cape Thelo, is a narrow peninsula extending one-half of a mile west-northwestward from the coast. The outer part of the peninsula is high, and its inner part is low; for this reason when the peninsula is seen from the northward at a distance greater than 10 miles, it has the appearance of an islet.

Pyrgo (Pirgos) Bay, about 1 mile wide in its entrance between Cape Nikolo to the south and Pyrgo (Pirgos) Point to the north, is open to the west and has considerable depths in its greater part and lesser depths near its irregular shore. Rocks lie a short distance off the southern shore, and the northern shore is indented by two small coves, where boats and small craft can shelter from northerly and easterly winds. At this bay are the conspicuous ruins of an ancient tower, located on Pyrgo Point. About one-half of a mile northward of Pyrgo Point is Cape Peristeri, and 1 mile farther north-northeastward is Cape Phassa (Fassa).

4-263 Cape Phassa Light, located one-half of a mile inland of the cape with the same name, is exhibited from a cylindrical masonry tower on a dwelling, the whole 69 feet high.

4-264 Northwestern coast of Andros.—This coast of the island has a length of 5 miles between Cape Phassa and Cape Kabanos (Kambanon), the northern extremity of the island, as well as the northeastern limit of Doro Channel. The depths are great and clear of dangers near this craggy and precipitous coast.

4-265 NORTHEASTERN AND EASTERN SIDES OF ANDROS—Vitali Bay ($37^{\circ} 56' N.$, $24^{\circ} 53' E.$, *H. O. Chart 4121*).—The northeastern coast of the island of Andros between Cape Kabanos, the northern extremity of the island, and Cape Gerias (Gria), the northeastern extremity of the island, a distance of 10 miles, recedes as far as $2\frac{1}{2}$ miles in a southwesterly direction to form a large and open bay. A light is shown on Cape Gerias. Cape Artemisia (Artemidhi),

the most projecting part of the western shore, divides this large bay into two parts, Mikroyiali Bay, the northwestern and smaller part, and Vitali Bay, the southeastern and larger part. The shore of the whole bay is high, precipitous, indented by small bays, and uninhabited for the most part. Small rocks are found at a short distance offshore in several places. Some of the small bays might be suitable for anchorage, but the whole bay is exposed to the full force of northerly and northeasterly winds with the attendant current.

The western shore of Mikroyiali Bay is indented by the smaller Makroyali (Mikroyiali) Bay and Zorko Bay. Both are open to the east and unsuitable for anchorage. Rocks lie off the shore of Makroyali Bay, the northern one.

At the middle of the western shore of Vitali Bay is Port Vitali. Having depths of 5 fathoms, this small port affords refuge to small craft against northwesterly winds and serves the village of Vitali. Tattani (Ateni) Bay, open to the east and shallow up to its entrance, is located at the junction of the western and the southern shore of Vitali Bay. The southern shore of Vitali Bay is indented by the small bays of Roza, Vori, and Lephka (Levka), located, respectively, $2\frac{1}{8}$, $3\frac{3}{4}$, and $4\frac{3}{4}$ miles westward of Cape Gerias. Roza Bay has depths of 5 to 3 fathoms, and immediately west of this bay and close offshore are the Anginari Rocks, above water. Gria Rock lies close offshore midway between Cape Gerias and Roza Bay. Vori Bay has depths of 4 fathoms; Lephka Bay, open only to the north, has depths of 4 to 3 fathoms, and affords the best shelter to small craft.

4-266 Coast.—From Cape Gerias the eastern coast of the island of Andros trends 3 miles southward to Cape Puda (Yialia),

the northwestern entrance point of Port Kastro. This precipitous coast is indented by several small bays and has deep water near it. Akhla Bay, located immediately southward of Cape Gerias, has depths of 7 fathoms and affords shelter to small craft against westerly winds. Stakala Rock lies close southward of the entrance to this bay, and $\frac{1}{8}$ and 1 mile farther southward and close to the coast are, respectively, Kelandro Rock and Theotoki Rock, all three rocks having deep water on their seaward side. Yialia Bay, located immediately north of Cape Puda, has inland of it the village of Steni, or Stenialis.

4-267 Port Kastro (Ormos Kastrou) ($37^{\circ}50' N.$, $24^{\circ}57' E.$, *H. O. Chart* 4138) is 1,500 yards wide in its entrance between Cape Puda (Yialia) to the northwest and Lidhi Point to the southeast, and recedes 1,200 yards in a southwesterly direction. It is completely open and attacked by northeasterly winds. A narrow tongue of land, on which is built the town, extends northeastward from the middle of the head of the bay, and connected to the extremity of this tongue by a ruined brick bridge is a small rocky islet having on it the ruins of an ancient Venetian fort. Extending for another 500 yards northeastward from this islet is a tongue of shallows with rocks above and below water; the small islet at the middle of this tongue of shallows is named Tourlitis. Tourlitis Light is shown on the islet.

Kastron Harbor, the principal anchorage, is the northwestern of the two parts into which Port Kastro is divided by the preceding tongue of land and its extension of shallows. The depths decrease gradually from 11 fathoms to 4 fathoms, and the 3-fathom curve is 200 yards off the sandy

shore at the head. A breakwater extends about 200 yards southward from the middle of the northwestern shore, and shelters a small area with shallows in its inner part and depths up to 5 fathoms in its outer part. It is stated that the head of the breakwater should be given a berth of 30 yards.

Paraporti is the name given to the southeastern part of Port Kastro. It also has depths of 11 to 4 fathoms, the 3-fathom curve being over 200 yards off the low sandy shore at the head. This part of the bay is rarely used for anchorage, and could be used only temporarily during good weather.

Light.—A light is shown from the head of the breakwater at Kastron Harbor.

Foul ground is located about 30 yards west-southwestward of the head of the above breakwater.

A mooring buoy is located about 100 yards west-northwestward of the head of the breakwater.

4-268 Anchorage is possible anywhere in Kastron Harbor in a suitable depth, good holding ground. The recommended berth is in a depth of 10 fathoms, sandy mud, about 200 yards southward of the head of the breakwater. This berth, as well as the whole interior part of the harbor, is open to strong northeasterly winds, which blow here even in the summer. Only small craft can take refuge in the lee of the breakwater during these winds.

During bad weather landing can be effected at the quayed inner end of the breakwater or at the northwestern recess of the harbor. Boats can land at the town only during fine weather.

4-269 Kastron (Andros), the capital of the island of Andros, is built on a narrow tongue of land projecting into Port Kastro; the newer part of the town is inland of this tongue. The inhabitants number about 2,500. Provisions and water are available in limited quantities. The town has telephone, telegraph, postal, and customs facilities. Coastal steamers make regular calls. There is a 20-bed hospital

4-270 Coast.—From Lidhi Point, the southeastern entrance point of Port Kastro,

the eastern coast of the island of Andros trends 2 miles southeastward to the conspicuous Cape Akamatis, where it turns southward and continues for a distance of $1\frac{1}{2}$ miles to Vuni Point, the northwestern entrance point of Korthion Bay. No dangers exist and the depths are considerable off this irregular and precipitous coast, which is indented by several small bays. These bays have suitable depths for anchoring, but delay or refuge in them is dangerous, as they are open to strong northeasterly winds, common in this area during the whole year.

Sinetis Bay, the southeasternmost and largest of the three bays located between Lidhi Point and Cape Akamatis, has at its interior the village of Sineti; the northwesternmost bay is called Xeravlakko. The coast close northward of Vuni Point is indented by Melissa Bay.

4-271 Korthion (Kordion) Bay (Ormos Korthiou) is $1\frac{3}{4}$ miles wide in its entrance between Vuni (Vouni) Point to the northwest and Cape Ayios Kosmas to the southeast, and recedes about the same distance in a west-southwesterly direction. The depths in the entrance exceed 38 fathoms but they decrease gradually to 10 fathoms at a distance of one-half of a mile off the low sandy shore at the head, where the 3-fathom curve is 200 to 250 yards off-shore. High and precipitous, the southern shore has near it deep water clear of dangers, and the inner part of this shore is indented by two small coves with shallow depths. A conspicuous and precipitous peninsula, named Pakhikavos, projects a short distance east-southeastward from the inner part of the northwestern shore. A light is shown from the southern extremity of Pakhikavos.

The peninsula of Pakhikavos and the western entrance point of the western shallow cove in the southern shore form the outer limits of the recommended anchorage area with depths of 9 to 5 fathoms, sand and

weeds. Anchorage is possible even farther out in greater depths. As the whole bay is open to easterly winds and in part to north-easterly winds, anchorage is dangerous during the winter and at times in the summer with its frequent and strong northeasterly winds. Only small vessels can take anchorage of relative safety leeward of the peninsula, anchoring in depths of 5 fathoms about 250 yards, or even less, southward of the shore, where stands an isolated church. Farther northward of the church stands a windmill.

A light is shown from the pierhead at Korthion.

A mooring buoy is located about 360 yards east-northeastward of the above pierhead.

A wreck lies about 1 1/3 miles eastward of the pierhead at Korthion, in a position about 175 yards offshore.

4-272 Korthion, a village of about 400 inhabitants, is built along the northern part of the head of Korthion Bay, and southward of the village the low land is cultivated. This village serves as a port for several settlements in the interior to the southwestward. A small pier is on the southern side of Vuni Point. Telegraphic, postal, and custom facilities are available. Coastal steamers call regularly.

4-273 Coast.—From Cape Ayios Kosmas, the southeastern entrance point of Korthion Bay, the coast is high, precipitous, and has near it great depths clear of dangers. It trends 5½ miles south-southwestward to Steno Point, the southern extremity of the island. A light is shown from Cape Ayios Kosmas. About 2 miles south-southwestward of Cape Ayios Kosmas is a small point, called Ai Yiannis, with rocks above and below water close off it, and this point forms the southern side of a small inlet with depths

of 9 fathoms. Moni Point, located one-half of a mile northward of Steno Point, separates two small bays open to the east. The southern bay has depths of 10 to 4 fathoms. Moni Bay, the northern one with charted depths of 12 to 2 fathoms, serves as the port for the inland settlement of Ayia Moni.

4-274 Kaloyeroi (Kaloyeri) Rocks ($38^{\circ} 10' N.$, $25^{\circ} 17' E.$, *B. A. Chart 2682*), two outlying rocks on the route between Doro Channel and the ports of Asia Minor, lie 25 miles east-northeastward of Cape Kabanos (Kambanon), the northern extremity of Andros Island. Megalos Kaloyeros, the southwestern rock, is a barren volcanic heap, 120 feet high, with rocks above water extending a short distance southeastward from it. It has the appearance of a sugarloaf, but when seen from the eastward or westward it appears to split in two parts. It also has been mistaken for a sail when seen from the northwestward at a distance of 8 to 9 miles. On the sides of Kaloyeroi Rocks are several curiously shaped lumps, which appear from some directions to resemble the heads of hooded monks.

Mikros Kaloyeros, a small rock 8 feet high, lies three-fourths of a mile northeastward of Megalos Kaloyeros. Extending 100 yards southward from this rock is a reef, on which the sea breaks; the depths close off the reef are 7 to 15 fathoms, with considerable depths farther off.

In 1947 it was reported that Kaloyeroi Rocks lie 1 mile south-southeastward from their charted position.

4-275 A light is shown from the summit of Megalos Kaloyeros.

CHAPTER 5

GREECE—CHANNELS BETWEEN EUBOEA ISLAND AND THE MAINLAND

5-1 EUBOEA (EVVOIA) (EURIPO) (NEGROPONT) ISLAND (*H. O. Chart 3966*), the third largest island in the eastern Mediterranean Sea, lies a short distance off the eastern coast of the mainland of Greece. Lying almost parallel to the mainland, the island is over 100 miles in length in a north-westerly and southeasterly direction and has a maximum width of 26 miles in its middle part and a minimum width of 3 miles in its southern part. The island, mountainous for the most part, has several high peaks. The highest peak, Mt. Delphi (Dhifis) 5,718 feet, located near the middle of the island, is scarcely ever free from snow. Mt. Pyxaria (Pixaria Oros), located northwestward of Mt. Delphi, is 4,403 feet high; Mt. Okhi (Okhi Oros), located at the southern end of the island, is 4,583 feet high. The Kandili (Kandhili) Mountains, along the western coast of the northern part of the island, attain heights of 3,994 feet and 3,072 feet in Mt. Kurumbliia (Kourvoulo) and Mt. Kandili (Khandhilion Oros), respectively; farther northwestward the heights range from 3,062 to 1,000 feet. The island also has some plains, which are under cultivation.

Euboea Island, from south to north, is separated from the mainland by Petali Gulf, Euripo Channel, Burji Channel, Outer Khalkis Harbor, Steno Pass, Inner Khalkis Harbor, Euripo Strait, and Atalante Channel. Some of these are only narrow passages connecting the larger bodies of water and present navigational difficulties. Steno Pass

and Euripo Strait, the latter crossed by a swing bridge, limit the size of vessels that can use the inner route to avoid the bad weather that exists at times in the Aegean Sea. The southeastern end of the island is separated from the Cyclades by Doro (Kafirevs) Channel, and the northwestern end is separated from the mainland, indented by the Gulf of Volos, by Oreos Channel and Trikiri Channel. Along the continuation toward the east of the axis of Trikiri Channel is found the greater part of the Northern Sporades.

The Greek Sailing Directions describe Petali Gulf, Euripo Channel, Burji Channel, Outer Khalkis Harbor, Steno Pass, Inner Khalkis Harbor, and Euripo Strait under the heading of Notios Evvoikos Kolpos, and also describe Atalante Channel under the name of Vorios Evvoikos Kolpos.

The principal industries are agriculture, fishing, and mining. The island has a good network of roads, and vessels of several coastal steamship lines connect the principal towns with Pireaus, the Cyclades, the Northern Sporades, Volos, and Thessaloniki. Khalkis, the largest inhabited center, owes its importance to its geographical location.

5-2 PETALI GULF (KOLPOS PETALION), the wide area of water between the southern end of Euboea Island and the mainland, takes its name from the Petali Islands, located on its eastern side. Cape Colonna and Cape Mandili are considered as

the southwestern limit and the southeastern limit, respectively, of this gulf.

5-3 WESTERN SIDE OF PETALI GULF—Coast (*H. O. Chart 4120*).—Between Cape Colonna (sec. 3-54) and Pegathi (Poundazeza) Point, $2\frac{1}{2}$ miles northeastward, the irregular coast forms Panorimo Bay and Pasha Bay (Passa Limani). Pasha Bay, entered about 1,200 yards west-southwestward of Pegathi Point, affords shelter to small vessels against northerly and westerly winds. The depths in the bay are from $4\frac{1}{4}$ to $2\frac{3}{4}$ fathoms. On the shallows bordering its southwestern entrance point is a rock above water, and 400 yards east-southeastward of this rock lies Pasha (Passa) Rock, with a depth of less than 6 feet on it. Vessels must keep over to the northeastern entrance point when entering the bay.

Cave (Fonias) Point, which is that part of the mainland nearest to the island of Makronisi, is located one-half of a mile northward of Pegathi Point. The intervening coast between these two points is indented by Panormos, a small bay with depths of $3\frac{1}{4}$ to $2\frac{3}{4}$ fathoms, sand, where small vessels can obtain shelter from northerly and westerly winds. The depths near Cave Point are great.

5-4 Lights.—A light is shown on Cave Point.

A light is shown from Velani Point.

5-5 Coast.—Point Perdhika, located 1,400 yards northwestward of Cave Point, is the termination of a small peninsula with a hill on it. Immediately southward of Point Perdhika is the small port of Gaidaro Mandri (Gardhouromandra), with a small shallow cove on its western side and a similar cove on its northern side. Shallows fringe Point Perdhika to a short distance.

5-6 Ergasteria (Lavrion) Bay, entered 1.3 miles northward of Cave Point, recedes one-half of a mile in a westerly direction and has an average width of one-third of a mile. The depths inside the bay are from 7 to $3\frac{1}{4}$ fathoms, but vessels should not approach the southern shore, off which extend shallows. Ergasteria Point, the northern entrance point, is the termination of a conspicuous narrow promontory extending 500 yards southeastward from the mainland. The hills rise sharply behind Ergasteria Bay, and there are four large chimneys above mine shafts on the hillsides behind the town. A huge pile of mineral waste covers the point south of the entrance to the bay. The high steel pier on the northern side of the bay is also conspicuous from seaward.

Caution.—Less than charted depths are reported to exist as far as 200 yards from the southern shore. Vessels should not approach closer than 400 yards.

A light is shown on Ergasteria Point. A 3-fathom rocky patch lies about 300 yards southeastward of the light.

5-7 Anchorage.—Although open to the eastward, Ergasteria Bay is sheltered from this direction by Makronisi. Southerly winds sometimes blow into the bay during the winter, but northerly and northeasterly winds attack the interior during all the seasons, sometimes with unusual force. Port Mandri is considered to be a better anchorage place than Ergasteria Bay.

There are several mooring buoys in the bay.

The recommended berth is in the center of Ergasteria Bay somewhat closer to the northern shore in 5 fathoms. The holding ground is not very good. This bay is not suitable for vessels over 10,000 tons.

Pilotage is compulsory for vessels loading ore. Vessels are boarded off the harbor entrance.

5-8 LAVRION is built along the northern and western sides of Ergasteria Bay. The inhabitants numbering about 7,000 are mostly engaged in the mining industry. The harbor office for Petali Gulf is located at this town.

Wharves.—The port has a mole located on the western side of the bay; the depth at its head is $24\frac{1}{2}$ feet. Northward of the mole are two piers. The larger of the two is 305 feet long with a depth at its head of $19\frac{1}{2}$ feet, but the depths alongside are about 13 feet; the smaller is about 210 feet long, with depths of $16\frac{1}{4}$ feet at its head. The port has one mobile crane of $1\frac{1}{2}$ -ton capacity and a rotary crane of $1\frac{1}{2}$ -ton capacity used for loading ore.

Northward of the mole, a portion of the shore is quayed, but the depths alongside are shallow.

Repairs.—Engine repairs of a minor nature are possible.

Supplies.—Provisions and water are available in limited quantities.

Communication.—Vessels of a line serving the eastern side of Euboea Island and the Northern Sporades call at this port. There is railroad and bus service to Athens. Telegraph, telephone, and postal facilities are available.

Hospital.—Lavrión has a small hospital.

5-9 Port Mandri (Ormos Thorikou) is located over 1,200 yards northward of Ergasteria Bay, from which it is separated by a hilly peninsula having shallow depths extending a short distance from it. The bay is three-fourths of a mile wide in its entrance and recedes the same distance in a westerly direction. The general depths are from 11 to $5\frac{1}{2}$ fathoms, but depths of less than 3 fathoms extend 400 yards from the western shore and to a lesser extent from the other shores. A small islet lies a short distance off the northern shore, to which it is connected by foul ground. Along the shores are factories with small wharves, suitable only for boats. A conspicuous church stands on the high peninsula forming the northeastern shore of the bay, and the lower and upper villages of Thorikon backed by a high hill are located on the northern side of the bay.

Anchorage.—Port Mandri affords excellent anchorage sheltered from all the winds attacking this region. The bottom consists of mud and seaweed. The best berth is in the middle of the bay.

5-10 Vrisaki (Ayios Nikolaos) Bay is limited to the southwest by Theriko (Thorikon) Point, the northern entrance point of Port Mandri, and to the northeast by Vrisaki Point, near which the water is deep. Having a width of two-thirds of a mile in its entrance between these two points, the bay recedes the same distance in a northwesterly direction. The general depths are from 8 to $4\frac{1}{4}$ fathoms, but depths of less than 3 fathoms extend 150 yards from the western shore and to a lesser extent from the other shores. As the bay is open to the southeast, it is subject to bad weather from the south. A small pier with a depth of 16 feet at its head is located at the western part of the northern shore. It is used by small vessels to load ore.

A light is shown on Vrisaki Point.

5-11 The coast from Vrisaki Point trends about $3\frac{1}{4}$ miles northward to Cape Mavrovouni (*H. O. Chart 4120*). The great depths near this coast are free from dangers. Numerous small bays indent the coast, but for the most part they are unsuitable for anchorage, being open to the eastward. At the head of the bay located 2 miles northward of Vrisaki Point is a small settlement with a factory having a chimney visible from the sea.

Wreck.—A wreck lies stranded about 2 miles northward of the light on Vrisaki Point.

Avlaki (Ennia) Bay, the small bay immediately southward of Cape Mavrovouni, is divided into a northwestern and a southwestern part by a point projecting from its western side. At this point is an iron pier having a length of 90 feet, a height of 30 feet, and a depth of 25 feet near it. The pier is equipped with mechanical appliances for loading ore. The anchorage off the pier has a sandy bottom. As the bay is exposed to winds from northeast to southeast, vessels

should be ready to take shelter at Port Mandri, Karystos Bay, or Port Agios Nikolaos at Zea Island. When entering, vessels should keep to the southern side of the bay, as shallows fringe the northern entrance point.

5-12 Makronisi (Helene) (*southern extremity, 37°38' N., 24°07' E., B. A. Chart 2682*), an island, lies parallel to the mainland between Cape Colonna and Cape Mavrovouni, being separated from the mainland by Mandri Channel. Extending 7 miles in a north-northeasterly and south-southwesterly direction, this island has a width of less than 1 mile in its southern part and more than 1 mile in its northern part. The hilly surface of this island attains its maximum height of 922 feet about 1 mile southward of Cape Tripiti, the northern extremity of the island; and about 2½ miles northward of Point Angarlestro (Angalistros), the bluff southern extremity of the island, is a 567-foot hill. Being covered with vegetation, the island is used by the inhabitants of the island of Zea for grazing their herds.

A detached rocky shoal having a length of 400 yards in a north and south direction and a least depth of less than 1 fathom lies 400 yards northwestward of Point Angarlestro. Cape Tripiti has shoal depths extending 200 yards northward from it. Close off the western coast of Makronisi in a position 1,600 yards south-southwestward of Cape Tripiti is a rock above water, and extending 200 yards northwestward from this rock are sunken rocks. Andonios, a 10-foot rock with sunken rocks close to it, lies close off the eastern coast of Makronisi in a position 2.6 miles southward of Cape Tripiti. This rock is close eastward of the southern entrance point of a small cove.

A light is exhibited from a white iron tower, 14 feet, with a concrete base on Point Angarlestro.

5-13 Makri Reef, extending 400 yards in a north and south direction and having a least depth of 1½ fathoms on its southern part, lies 2 miles north-northwestward of Point Angarlestro and one-half of a mile off the western coast of the island. The whole of Megalo Island kept open westward of Makronisi and bearing 027°, or, at night the white sector of the light on Vrisaki Point, leads westward of Makri Reef.

Tripiti Rock, awash, lies one-half of a mile northwestward of Cape Tripiti. A 3¼-fathom patch lies 400 yards southward of Tripiti Rock. Tripiti Rock is easily seen by day, as it usually breaks even in calm weather. The town of Zea, located on the island of Zea, kept open northward of Cape Tripiti leads northward of Tripiti Rock, and the summit of island of Agios Georgios kept in range 208° with Pegathi Point leads close westward of this rock.

A dangerous wreck lies off the northern side of Tripiti Rock.

5-14 Mandri (Makronisos) Channel, which separates Makronisi from the mainland, narrows to a least width of 1½ miles abreast Cave Point. The dangers to be avoided are Pasha Rock, Makri Reef, and Tripiti Rock; apart from these dangers the fairway is deep.

5-15 The coast (*H. O. Chart 4120*) of the mainland from Cape Mavrovouni to Cape Mavronori, 3¾ miles north-northwestward, is indented by two bays, Daskalio and Kaki Thalassa, separated by a rocky promontory terminating in Aspro Point. The small bay of Tourkolimano, located about 1 mile northwestward of Cape Mavrovouni, is open to the northeastward and unsuitable for anchorage.

Daskalio Bay (Ormos Dhaskalio), located immediately northward of the northwest limit of Tourkolimano Bay, is open to the

eastward. Depths of less than 10 fathoms extend 400 yards from the western shore, and farther out they increase to 16 fathoms. Off the northern part of the western shore, from which it is separated by a shallow passage with a width of 200 yards, lies a small rocky islet with a small church and an ancient tomb on it. Dhaskalion, a small settlement, is located on the southwestern shore, and on the northern shore eastward of the islet are a few cottages.

Kaki Thalassa Bay, indenting the coast between Aspro Point and Cape Mavronori, $1\frac{1}{2}$ miles northward, is open to the east and northeast. Depths of less than 10 fathoms extend 500 yards from the head, where there is a small projecting point with a rocky islet off it. A small settlement, a church, and a monastery, are located at this bay.

Ormos Vourkari, the small bay indenting the coast immediately northward of Cape Mavronori, is open to the eastward. The northern side of the bay is formed by a peninsula, 416 feet high, connected to the mainland by a low neck of land. A sunken rock lies off the low western shore, where the depths are $3\frac{3}{4}$ to $2\frac{3}{4}$ fathoms, increasing abruptly to more than 16 fathoms at a distance of 600 yards offshore. Kuruni (Koroni) Islet lies close eastward of the peninsula, from which it is separated by a narrow passage with a least depth of 17 fathoms. Kuruni (Koroni) Point, the northern extremity of the peninsula, is the southern entrance point of Port Raphtis.

5-16 Port Raphtis (Ormos Rafti) (*entrance, $37^{\circ}53'$ N., $24^{\circ}03'$ E., plan on B. A. Chart 2682*), entered northward of the high peninsula forming the northern side of Ormos Vourkari, is over 1 mile wide in its entrance and recedes nearly $1\frac{2}{3}$ miles westward in its northern part. The land on the northern side of this fairly large bay attains a height of 1,004 feet in Mt. Perati. The

general depths are from 10 to $5\frac{1}{2}$ fathoms, approaching 22 fathoms in the outer part; nowhere do depths of less than 3 fathoms exist more than 300 yards offshore.

Raphtis (Raftis) Islet, 305 feet high, lies in the middle of the entrance to Port Raphtis. On the summit of this steep-to islet is a mutilated marble statue in a sitting posture.

A light is shown on Akra Punta, a point about 1 mile westward of Raphtis Islet.

Raphtis Pulo (Raftopoula), a smaller rocky islet with deep water around it, lies 650 yards west-northwestward of Raphtis Islet. Praso Islet, which is only a few feet high and has deep water eastward of it, lies a short distance southward of the point projecting 650 yards eastward from the western shore of the bay.

The small settlement of St. Spiridona (Ayios Spiridhon) is located on the northern shore of the bay, and another small settlement with a church is located within the projecting point of the western shore. The latter settlement, named Ayios Nikolaos, is built along the shore of a cove, on the eastern side of which are three small concrete piers.

5-17 Anchorage.—Since even the inner part of Port Raphtis is subject to easterly winds and partly to northeasterly winds which are frequent and strong, this port does not afford anchorage as good as that obtainable in Port Mandri. The bottom is composed of mud, sand, and seaweed; it is not very firm and presents very abrupt changes in depth in places. A good berth in depths of 20 to 25 feet is either between the northern shore and the projecting point of the western shore or in a depth of 8 fathoms about 650 yards southeastward of Praso Islet.

5-18 Coast (*H. O. Chart 4120*).—Ziorti Bay (Ormos Vraonas), open to the east, is located 2 miles northward of Port Raphtis, from which it is separated by the rocky mass of Mt. Perati. Close off the coast southward

of this bay lies Perati Islet, and the small rocky islet of Vraona lies 200 yards off the northwestern shore of the bay, from which it is separated by shallow depths. The depths northeastward of Vraona Islet increase from $5\frac{1}{2}$ to 11 fathoms. At the head of this bay and along its other shores the depths are under 3 fathoms.

Beyond Ziorti Bay the coast trends northward and has near it shallow depths with rocks above and below water. Among the hills along the southern part rises Agios Joannis (Ayios Ioannis), 643 feet high, with a small church on it. The northern part up to Velani Point is level and wooded and has cottages along its shore.

5-19 Velani Point ($37^{\circ}59' N., 24^{\circ}02' E.$, *H. O. Chart 4123*), located $3\frac{1}{4}$ miles northward of Ziorti Bay, projects eastward from the general northerly trend of the coast. On the southern side of this low point stands a chapel. Shallows extend one-half of a mile southeastward and southward from the point, and within these shallows are located two islets. A church stands on the western islet. The coast northward of the point has depths of less than 5 fathoms extending offshore for a distance of 200 yards.

A light is shown from a white iron tower located on the eastern of the two islets off Velani Point.

5-20 Coast.—The town of Triglia (Rafina) is located on the shore of the small shallow cove 2 miles northward of Velani Point. It is a summer resort for Athens, with which it is connected by a highway. A breakwater, about 330 feet long and with a depth of about 15 feet at its head, extends southward from the northern entrance of the cove.

The small steep hill just behind the base of the mole is a useful landmark. The white houses on the high land behind the

cove are conspicuous from seaward, especially from the south and east. Only caiques of less than 100 tons use this cove.

A light is shown from a white iron hut with a mast, 13 feet high, located on the submerged outer end of the breakwater.

Rocks and shallows extend over 500 yards from the small projecting point $2\frac{3}{4}$ miles northward of Triglia, and depths of less than 5 fathoms extend one-half of a mile from the sandy shore southward of the point. Numerous villas are located in the vicinity of this point.

5-21 Marathon Bay (Ormos Marathonos), limited to the southwest by the above-mentioned small projecting point and to the northeast by Cape Marathon, is 4 miles wide between these two points and recedes over 2 miles in a northwesterly direction. Cape Marathon (Akra Marathonos), fringed by shallow depths to only a short distance, is the termination of a high, narrow, rocky promontory extending $1\frac{1}{2}$ miles southward from the mainland. The shores are low and for the most part sandy. The northwestern shore is backed by the Plain of Marathon, and ancient monuments recalling the decisive battle fought on this plain still stand. On the western shore is built the settlement of Ayios Konstandinos.

A floating target is located about 2 miles westward of Cape Marathon.

Prohibited area.—An aerial bombing area exists in Marathon Bay northward from a line extending 2.1 miles 241° from Cape Marathon and thence to shore on the bearing 314° .

5-22 Anchorage.—Marathon Bay affords suitable anchorage only during the summer months. The general depths are 6 to 8 fathoms in the southern part and 10 to 11 fathoms in the northern part. Nowhere do depths of less than 5 fathoms extend more than two-thirds of a mile offshore.

By day Cape Marathon is a good landmark for the recognition of the bay; at night the light on Dipsa Rock, located $2\frac{2}{3}$ miles eastward of Cape Marathon, is useful.

5-23 Cape Drakonera (Dhrakonera), located $2\frac{3}{4}$ miles north-northeastward of Cape Marathon, is the termination of a conspicuous promontory, 770 feet high, extending three-fourths of a mile eastward from the mainland. Along the southern side of this promontory, as well as along the eastern side of the promontory of Cape Marathon, the water is deep, but shoal water extends a short distance from the eastern and northern sides of Cape Drakonera. Between Cape Drakonera and a small projecting point, 328 feet high, located 1 mile southwestward is a bay with considerable depths. This whole region is precipitous and uninhabited.

5-24 Cape Agia Marina (Ayia Marina), the termination of a conspicuous precipitous promontory, 713 feet high, forming the western side of the entrance to Euripo Channel, is located 2 miles northward of Cape Drakonera, from which it is separated by Agia Marina (Ayia Marina) Bay. Depths of less than 3 fathoms extend 200 yards from the southeastern part of the cape, and depths of less than 5 fathoms extend 650 yards from the northern part and 400 yards from the southern part of Agia Marina Bay. Besides scattered houses along its shore, a church stands in a level patch of cultivated ground at the northern part of the bay, and elsewhere the shores are backed by hills.

A light is shown from the northeastern extremity of the face of Cape Agia Marina.

5-25 The Berdugi (Verdhouyi) Islets front Agia Marina Bay. These four islets extending in a northwesterly and southeasterly direction are separated from each other by narrow passages with depths under $3\frac{3}{4}$ fathoms. No dangers exist near these islets,

and vessels can pass either westward or eastward of the group.

Lights.—A light is shown from an elevation of 33 feet on Ligia Islet, the islet on the southeastern end of the Berdugi Islets.

A light is shown from an elevation of 56 feet on Leukasia Islet, the islet on the northwestern end of this group.

A foul area exists about $\frac{3}{4}$ mile southwestward of Ligia Islet.

5-26 EASTERN SIDE OF PETALI GULF.—Karystos Bay (Ormos Karistou) (*entrance*, $37^{\circ}57'N.$, $24^{\circ}26'E.$, *H.O. Charts 4120, 4121 and 4123*), which indents the short southern side of Euboea Island, is 4 miles wide in its entrance between Cape Mandili (sec. 6-2) on the east and Paximadi (Paximadhi) Point on the west and recedes $3\frac{1}{2}$ miles in a northerly direction. Shallows extend over 200 yards from Paximadi Point, and within these shallows lies Paximadi (Paximadhi) Islet, 44 feet high. The water is deep at a short distance off the eastern shore of the bay, but the depths with dangers are irregular along the western shore, from which project two small promontories. An islet lies close off each promontory, and on the northern islet stands a small conspicuous church.

A light is exhibited from an iron framework tower, 26 feet high, standing on Paximadi Islet.

Current.—A northwesterly current sets into Karystos Bay, having a velocity of $\frac{1}{2}$ to 1 knot.

5-27 Karystos (Karistos) Harbor, a small artificial basin formed by two breakwaters, is in front of the town of Karystos, located at the head of the bay. The eastern breakwater with two bends in it trends 530 yards in a general southwestward direction from a position on the shore close westward

of an ancient castle, and the western breakwater trends 100 yards in a south-southwesterly direction from the shore. Between the heads of these two breakwaters is the entrance open to the west and having a width of 135 yards. A jetty projects 100 yards into the harbor from its northern side. The general depths in the harbor are from 16 to 15 feet, mud, but are considerably less off the inner part of the eastern breakwater.

Lights.—A light is exhibited from an iron column, 20 feet high, on the head of the eastern breakwater.

A light is shown from a skeleton structure, 13 feet high, on the head of the jetty which projects from the northern side of the harbor.

5-28 Anchorage.—Vessels unable to navigate Doro (Kafirevs) Channel during strong northerly winds should not hesitate to seek refuge in Karystos Bay. The depths toward the interior of this bay are suitable for anchorage. Northerly winds also blow violently in the bay, especially in the sector between the bearings of 040° and 330° toward the conspicuous church in the town of Karystos. A relatively calm berth is available with the church bearing 313°, distant $1\frac{3}{4}$ miles. It is advisable to use a long scope of chain and to have a second anchor ready to let go, as the holding ground, sand in the inner part and sand and shells in the outer part, is indifferent.

The usual anchorage is 200 to 400 yards southward of the eastern breakwater in depths of 10 to 15 fathoms, sand. This berth is not a good one in view of the poor holding ground, as well as being exposed to southerly winds. Also during northerly gales extremely strong gusts are experienced.

5-29 Winds.—When northerly winds first commence to blow, they are moderate at the head of the bay. Later their force increases and their direction varies; rarely do they turn for a short period of time toward the land. Poor visibility toward Zea Island, which is then faintly discerned upon the veiled and cloudy horizon, furnishes a

characteristic indication of the permanence of bad weather. Light clouds on the peak of Mount Okhi forecast northerly winds.

5-30 KARYSTOS (KARISTOS) ($38^{\circ}01' N.$, $24^{\circ}25' E.$, *H. O. Charts 4121 and 4123*), built at the head of the bay, has a population of 1,850. A considerable part of the inhabitants are engaged in fishing and to a lesser extent in sponge fishing. Citrus fruit, onions, and cattle are raised in the surrounding country. A sub-customhouse is maintained at this town.

Wharves.—Coasting steamers use the town quay forming the northern side of the eastern basin of the harbor.

Supplies.—Provisions are procurable in large quantities. Water is available at the town quay, but the supply is limited.

Repairs.—A small boat repair yard is located near the root of the western breakwater.

Communication.—A telegraph office, a telephone office, and a post office are located in the town. Coasting steamers call.

5-31 Cape Roxo (Rozos) ($37^{\circ}29' N.$, $24^{\circ}21' E.$, *H. O. Chart 4120*) is located $2\frac{1}{4}$ miles northwestward of Paximadi Point, the western entrance point of Karystos Bay. The southwestern coast of Euboea Island between these two points is high and precipitous, and shallows extend offshore as far as 300 yards in places. This cape is difficult to distinguish, not being in sufficient relief from the high land (1,005 feet) in the interior. A shoal with a depth of three-fourths of a fathom lies 200 yards southwestward of Cape Roxo, close off which lies a large rock above water.

5-32 Off-lying dangers.—Four-foot Rock, over which the depth is less than 6 feet, lies 1,650 yards west-northwestward of Cape Roxo and one-half of a mile off the nearest land to the northwestward of the cape. Depths of less than 3 fathoms extend nearly 200 yards northwestward from the rock. The summit of Phundo Islet in range 312° with the northeastern extremity of Megalo Island leads southwestward of Four-foot Rock.

About $1\frac{1}{2}$ miles westward of Cape Roxo lies a $2\frac{1}{2}$ -fathom rocky patch. Marmari

Point, the northern entrance point of Marmari Bay, in range 347° with the eastern extremity of Xero Island leads close westward of this $2\frac{1}{2}$ -fathom patch; therefore the point should be kept shut in by the eastern extremity of the island. Marmari Point bearing 842° and slightly open westward of the eastern shore of Xero Pass leads between the $2\frac{1}{2}$ -fathom patch and Four-foot Rock, which are 1,400 yards apart from each other.

5-33 Petali (Petaliol). Islands, a group consisting of two large islands and six small islets that occupy an area extending $4\frac{1}{2}$ miles north and south and $2\frac{1}{2}$ miles east and west, lie off the southwestern coast of Euboea Island between Cape Roxo and Marmari Bay, which the group partially fronts. The passage that trends southward from Marmari Bay and separates the two large islands from the mainland is named Xero Pass.

Megalo (Megalo Petali) Island, the southernmost and largest of the group, attains a height of 1,285 feet and has the shape of a circle with a diameter of $2\frac{1}{2}$ miles. Depths of 5 fathoms are found at a short distance off the coast of this island. Port Vasiliko, indenting the southern coast, has depths of 8 to 3 fathoms in its outer part. A small islet lies close off the eastern side of Megalo Island, to which it is connected by shoal water. A very small village is located on the eastern part of the northern coast.

Xero Island (Khersonisi), 610 feet high, and $1\frac{1}{4}$ miles long in a north and south direction, lies 300 yards northwestward of Megalo Island. Across the passage separating these islands is a 1-fathom ridge, apparently the remains of an ancient mole. The southern side, with the exception of the ridge, the eastern side, and the northern side of the island have deep water off them. The western side of the island is indented by two shallow coves, and on the shore of the south-

ern cove is a village with a conspicuous church. Drinking water may be obtained from wells at the northern cove.

Trago Islet lies in the entrance of the bay formed between the western side of Xero Island and the northern side of Megalo Island. The islet is fringed by depths of less than 3 fathoms, which extend as far as 300 yards from the southern side and 100 yards from the remaining sides. Pontiko (Pondiko), a much smaller islet, lies 600 yards southward of Trago Islet. The depths around this islet and in the area southeastward of it are less than 3 fathoms.

Foundas (Phundo), the westernmost of the six islets in the Petali group, lies one-half of a mile northward of the northern extremity of Megalo Island, from which it is separated by deep water. Depths of less than 5 fathoms extend only a short distance from this islet. Praso Islet lies 400 yards northeastward of Foundas, and the passage between them has a least depth of 6 fathoms. Shallow depths extend 100 yards from the shores of Praso.

Lamberusa (Lamberousa) Islet lies 900 yards north-northwestward of Xero Island, from which it is separated by deep water, and fronts the southern part of Marmari Bay. Shallow depths do not extend more than 100 yards from Lamberusa.

Avgo and Makro, both considerably smaller than Lamberusa, lie 400 yards westward of that islet, from which they are separated by deep water. Both of these islets are fringed by shoal water to a distance of 100 yards. In the deep water northwestward of Avgo and Makro are three rocky shoals, a 3-fathom patch 300 yards northwestward of Avgo, a $3\frac{1}{2}$ -fathom patch 300 yards northwestward of Makro, and another $3\frac{1}{2}$ -fathom patch 800 yards northwestward of Makro. Although the

Point, the northern entrance point of Marmari Bay, in range 347° with the eastern extremity of Xero Island leads close westward of this $2\frac{1}{2}$ -fathom patch; therefore the point should be kept shut in by the eastern extremity of the island. Marmari Point bearing 842° and slightly open westward of the eastern shore of Xero Pass leads between the $2\frac{1}{2}$ -fathom patch and Four-foot Rock, which are 1,400 yards apart from each other.

5-33 Petali (Petalioi) Islands, a group consisting of two large islands and six small islets that occupy an area extending $4\frac{1}{2}$ miles north and south and $2\frac{1}{2}$ miles east and west, lie off the southwestern coast of Euboea Island between Cape Roxo and Marmari Bay, which the group partially fronts. The passage that trends southward from Marmari Bay and separates the two large islands from the mainland is named Xero Pass.

Megalo (Megalo Petali) Island, the southernmost and largest of the group, attains a height of 1,285 feet and has the shape of a circle with a diameter of $2\frac{1}{2}$ miles. Depths of 5 fathoms are found at a short distance off the coast of this island. Port Vasiliko, indenting the southern coast, has depths of 8 to 3 fathoms in its outer part. A small islet lies close off the eastern side of Megalo Island, to which it is connected by shoal water. A very small village is located on the eastern part of the northern coast.

Xero Island (Khersonisi), 610 feet high, and $1\frac{3}{4}$ miles long in a north and south direction, lies 300 yards northwestward of Megalo Island. Across the passage separating these islands is a 1-fathom ridge, apparently the remains of an ancient mole. The southern side, with the exception of the ridge, the eastern side, and the northern side of the island have deep water off them. The western side of the island is indented by two shallow coves, and on the shore of the south-

ern cove is a village with a conspicuous church. Drinking water may be obtained from wells at the northern cove.

Trago Islet lies in the entrance of the bay formed between the western side of Xero Island and the northern side of Megalo Island. The islet is fringed by depths of less than 3 fathoms, which extend as far as 300 yards from the southern side and 100 yards from the remaining sides. **Pontiko (Pondiko)**, a much smaller islet, lies 600 yards southward of Trago Islet. The depths around this islet and in the area southeastward of it are less than 3 fathoms. A conspicuous black beacon stands on Pontiko.

Foundas (Phundo), the westernmost of the six islets in the Petali group, lies one-half of a mile northwestward of the northern extremity of Megalo Island, from which it is separated by deep water. Depths of less than 5 fathoms extend only a short distance from this islet. **Praso Islet** lies 400 yards northeastward of Foundas, and the passage between them has a least depth of 6 fathoms. Shallow depths extend 100 yards from the shores of Praso.

Lamberusa (Lamberousa) Islet lies 900 yards north-northwestward of Xero Island, from which it is separated by deep water, and fronts the southern part of Marmari Bay. Shallow depths do not extend more than 100 yards from Lamberusa.

Avgo and Makro, both considerably smaller than Lamberusa, lie 400 yards westward of that islet, from which they are separated by deep water. Both of these islets are fringed by shoal water to a distance of 100 yards. In the deep water northwestward of Avgo and Makro are three rocky shoals, a 3-fathom patch 300 yards northwestward of Avgo, a $3\frac{1}{2}$ -fathom patch 300 yards northwestward of Makro, and another $3\frac{1}{2}$ -fathom patch 800 yards northwestward of Makro. Although the

difficult, as numerous fishing boats gather around the islet.

5-40 Coast.—Between the promontory dominated by Mt. Viglia and Cape Strongylo (Strongilo), $2\frac{1}{2}$ miles north-northwestward, the coast forms a bay, which is open to the southwest and unsuitable for anchorage on account of the great depths. The northern half of the eastern shore has shoal depths extending offshore to a distance of 200 yards, and a rocky shoal with a depth of $3\frac{1}{4}$ fathoms lies 600 yards off the middle part of the northern shore. The cove indenting the northern shore immediately eastward of Cape Strongylo has a depth of 5 fathoms at its head, where small craft can shelter from northerly winds.

5-41 Stura (Stira) Island, located $1\frac{3}{4}$ miles northward of Cape Strongylo, is very irregular in shape. The southern part is a narrow tongue of land trending three-fourths of a mile in a south-southeasterly direction. Several small islets and dangers lie close to the island. The depths along its shores are great for the most part, but at a number of places and at very small distances from them extend shallows. About 400 yards off the entire group the depths are great with the exception of a 2-fathom rocky patch, and the navigation of the passages between the island and islets should be avoided.

Petusi (Petousi) Islet extends almost parallel to the western shore of the southern part of Stura Island, with which it is jointed by depths of $1\frac{3}{4}$ fathoms. Shallows extend a short distance from the southern end of this islet.

Hagios Andreas (Ayios Andreas), the small rocky islet lying off the middle of the western shore of Stura Island, from which it is separated by a very narrow passage with considerable depths, has depths of less

than 3 fathoms extending 200 yards westward and southward from it.

Phonias (Fonias) Islet, lying one-half of a mile northwestward of the northwestern extremity of Stura Island, has rocky shoals extending a considerable distance in all directions from it. The deep channel between the islet and the island should be avoided, as a sunken rock lies near its axis.

Konelli Islet is separated from the eastern part of the northern coast of Stura by a passage having a width of 800 yards and considerable depths. In this passage lie two smaller islets, and a sunken rock lies northward of the eastern one.

5-42 Shoal.—An isolated 2-fathom rocky patch, with considerable depths around it, lies three-fourths of a mile northwestward of Phonias Islet and one-half of a mile southward of the projecting peninsula of Euboea Island.

5-43 Stura Bay is the area of water to the eastward of Stura Island. There are no dangers, but the depths in most places are too deep for anchoring. Nea Stira built along the southeast shore, is the commercial harbor for the inland village of Stura (Stira), located at an elevation of 312 feet. Nea Stira has two landing places for boats. Depths of less than 3 fathoms extend 80 yards offshore, and 20 yards farther out are depths of $5\frac{1}{2}$ to 7 fathoms.

The name Stura Bay is also applied to the entire large bay between Cape Strongylo and Cavaliani Island, 6 miles northwestward. Under these broad limits the bay is open to the southwest and contains Stura Island with its islets. Projecting from the northern side of the large bay are two peninsulas, forming two smaller bays. The western small bay, open to the southward, has depths that are too great to make it suitable for anchorage. Tigani Islet lies about 200 yards off its eastern shore. The eastern

small bay, open to the southeast, is sufficiently safe but also has considerable depths. Depths of less than 3 fathoms and rocks extend 200 yards from its northeastern shore.

5-44 **Cavaliani (Kavaliani) Island**, which forms the eastern side of the entrance to Euripo Channel, is located $1\frac{1}{4}$ miles north-eastward of Cape Agia Marina (sec. 5-24), which forms the western side of the same entrance. Extending $1\frac{1}{2}$ miles in a north and south direction, the island attains a height of 568 feet and has some ruins at its southern end. Shallows extend short distances from the island in places, and about 650 yards northward of the island lies an islet, which marks the extremity of the shallows from this part.

A passage with a width of 500 yards and considerable depths separates the southeastern point of Cavaliani Island from Euboea Island. A sunken rock lies on the Cavaliani side of the passage.

5-45 **EURIPO CHANNEL**, from its southern entrance between Cape Agia Marina on the west and Cavaliani Island on the east, trends first northwestward and then westward for a total distance of 26 miles to Burji Channel, the southern entrance to Outer Khalkis Harbor. The eastern and northern shores formed by the irregular coast of Euboea Island present a number of bays and anchorages. Vessels using the channel generally keep to the southern shore, along which the depths are considerable and shoal depths extend offshore only a short distance. To avoid the shoals in the vicinity of Port Eretria, vessels pass the light at Oropos Bay at a distance of less than $1\frac{1}{2}$ miles.

5-46 **SOUTHERN SIDE OF EURIPO CHANNEL**—Coast (*H. O. Chart 4123*).—

From Cape Agia Marina the shore of Euripo Channel trends northwestward in a straight line for a distance of $7\frac{1}{2}$ miles to Cape Kalamos, where it commences to trend in a west-northwesterly direction. The depths along this stretch of the coast are great, and only at distances of $2\frac{1}{2}$ and 4 miles from Cape Agia Marina do shoal depths extend offshore for a distance of 200 yards. At the first distance from Cape Agia Marina is the ruined fortress of Evreo-Kastro, with the ruins of Rhamnus near it. In the interior of these ruins is the village of Grammatikon. About 1 mile northwestward of the fortress is the small bay of Limiona.

5-47 **Cape Kalamos** rises to a height of 503 feet and is steep-to. Since rocks have been reported to lie one-half of a mile northward and northwestward of the cape, it should be given a sufficient berth.

Shoal.—A 3-fathom rocky patch lies $1\frac{1}{4}$ miles west-northwestward of Cape Kalamos and 600 yards offshore.

5-48 **Apostolos (Ayioi Apostoloi) Bay**, open to the northward, is entered 3 miles west-northwestward of Cape Kalamos. Depths of less than 3 fathoms extend a short distance from the southeastern and southern shores of this deep bay. Besides water mills, a fishing settlement, which serves as a commercial harbor for the inland village of Kalamos, is located at this picturesque bay.

5-49 **Oropos Bay (Ormos Oropou)** ($38^{\circ} 19' N.$, $23^{\circ} 48' E.$, *H. O. Chart 4123*) is located 4 miles west-northwestward of Apostolos Bay, and the intervening coast between them has shoal depths extending offshore as far as 400 yards in places. Over 1 mile wide in its entrance open to the northward, the bay recedes one-half of a mile southward and has depths varying between 11 to $61\frac{1}{2}$ fathoms. Depths of less than 5 fathoms extend 500 yards from the southwestern shore and to a lesser extent from the south-

ern shore, but depths of more than 7 fathoms exist close off the southeastern shore. Anchorage is possible in any convenient depth.

A light is exhibited from a white iron tower with concrete base, the whole 10 feet high, on the eastern entrance point of Oropos Bay; a windmill is also located on the eastern entrance point.

5-50 Anchorage is available in the middle of Oropos Bay in depths of 12 to 10 fathoms, sand. Vessels are exposed to northerly winds in summer and winter.

Tides.—The tidal range is 1 to $1\frac{1}{2}$ feet.

5-51 OROPOS (SKALA OROPOU), the settlement built at the head of Oropos Bay, has a population of 1,900 (including the inhabitants of Nea Palatia to the east.) This whole area has been rebuilt, having suffered an earthquake in 1938. This settlement has a post office, a telephone office, a telegraph office and a sub-customhouse.

Wharves.—The lignite-loading pier is located eastward of the settlement. This pier has a length of about 130 feet and a depth of 24 feet off its head. The main pier at the western end of the settlement has a length of about 140 feet and a depth of 10 feet off its head.

Supplies.—The drinking water is of good quality and is procurable in moderate quantities.

5-52 The coast from Oropos Bay trends $4\frac{1}{2}$ miles westward and then $4\frac{1}{4}$ miles north-northwestward to Burji Channel. Rocks above water and depths of less than 5 fathoms extend as far as 500 yards offshore along this part of the coast.

Angestri (Khalkoutsí) Bay, located 2 miles westward of Oropos Bay, from which it is separated by cultivated lowland, has depths of less than 5 fathoms. The village of Khalkoutsí is located at this bay.

Dramisi (Paralia), located $1\frac{1}{2}$ miles southward of Burji Channel, is a settlement of 350 inhabitants. It is sometimes used as a commercial harbor for the inland town of Vathia (Avlis). Telegraphic and postal service are available.

5-53 EASTERN AND NORTHERN SIDES OF EURIPO CHANNEL.—Port Ar-

myro Potamo (Almiropotamos) (entrance, $38^{\circ}15' N.$, $24^{\circ}07' E.$, H. O. Chart 4123) indents the coast of Euboea Island to a distance of 3 miles in a northeasterly direction from its entrance, the largest part of which is fronted by Cavaliani Island (sec. 5-44) and has an average width of three-fourths of a mile. The depths decrease gradually from 37 fathoms in the entrance to 8 fathoms at the head. A steep-to islet lies close off the southeastern shore, to which it is joined by shoal depths, and a small promontory, with an islet off it, projects from the inner northwestern shore. Shoal depths extend 200 yards from the eastern shore at the head of the bay, and a similar distance from the islet off the small promontory. A stream of brackish water discharges into the head of the bay, and about $1\frac{1}{2}$ miles eastward of the head is the village of Armyro Potamo (Almiropotamos).

The entrance northward of Cavaliani Island presents no difficulties along its axis. The narrow deep entrance between the southeastern point of Cavaliani Island and Euboea Island has a sunken rock in it, and shoal water extends a considerable distance from the southern entrance point of the bay.

5-54 Coast.—From Port Armyro Potamo the coast trends 2 miles north-northwestward and thence $1\frac{1}{4}$ miles northeastward to the entrance of Port Buphalo. Along the first part of this coast are two unimportant coves open to the west, and along the second part is a single cove open to the northwest. This last-mentioned cove has a depth of 15 fathoms in its entrance and 3 fathoms in its interior.

Port Buphalo (Ormos Boufalo) trends about one-half of a mile in a northeasterly direction and has depths of 5 fathoms in only a small area at its head. An islet lies westward of the northern entrance point, which is fringed by shallows. The deep

water is along the southeastern shore. At the head is a small fishing settlement, the commercial harbor for the inland village of Veru (Virra). The climate of the neighboring farming country is unhealthy (swamp sickness), especially in the summer.

From Port Buphalo the coast trends 1 mile northward and thence 4 miles westward to form the southern side of the peninsula of Cape Aliveri. Near the middle of the last-mentioned stretch of the coast is a small cove with considerable depths, and close off the coast westward of this cove is a small, steep-to, rocky islet.

Cape Aliveri is the western termination of a peninsula extending 2 miles westward from Euboea Island. Having a width of three-fourths of a mile, this peninsula increases its height from 480 feet in the western part to 912 feet in the eastern part. The cape is steep-to, but from the northern side of the peninsula shoal depths extend offshore in places as far as 200 yards. A white pillar is located near the western extremity of the cape. Also the northern side immediately eastward of Cape Aliveri is indented by a small cove, and 1 mile farther eastward projects a small point. Close eastward of this small point the coast turns and trends north-northwestward for a distance of 2 miles to Aliveri Bay.

5-55 Aliveri Bay (Ormos Aliveriou) (*H. O. Chart 4123*), open to the southwest, is entered 3 miles north-northeast of Cape Aliveri. Indenting the coast to a distance of two-thirds of a mile, the bay has a width of $1\frac{1}{3}$ miles, and in its northern part depths of 16 to $5\frac{1}{2}$ fathoms. Shallows extend 200 yards from the low sandy shore at the southeastern recess.

A breakwater extends 250 yards eastward from the northwest limit of the northeastern recess of the bay. This breakwater shelters a small harbor having depths of 30 to 10 feet. Along the embanked shores of this harbor are the houses of Aliverion Skala,

the commercial harbor for the town of Aliverion.

A light is exhibited from an iron column and hut, 16 feet high, on the head of the breakwater at Aliveri Bay.

Landmarks.—The tower east of the town is conspicuous from seaward. When a vessel is closer in, the soap factory with its chimney on the northern side of the harbor and the breakwater are conspicuous.

5-56 Anchorages.—The recommended berth for a large vessel is about 400 yards southward of the breakwater. The holding ground, sand, is reported to be only fair, and this berth is exposed to southerly and westerly winds.

Small vessels anchor inside the harbor, where the shelter and holding ground are good. Cargo can be worked in the harbor during all but westerly blows.

Tides.—The maximum range of the tide is about 2 feet.

5-57 Aliverion, a town of about 3,000 inhabitants, is built on the slope of a hill not far inland from the harbor settlement of Aliverion Skala. This town is a manufacturing, an agricultural, and a mining center, some of the best lignite coal fields of Greece being located near here.

A customhouse, a telegraph office, and a post office are located in the town. The town has steamer communication with some of the other important towns, and telephonic service to Khalkis and Athens.

Wharves.—The inner side of the breakwater has depths of 13 to 8 feet alongside. The pier projecting from the soap factory on the northern side of the harbor has a length of 143 feet and a depth of 10 feet at its head.

5-58 Coast.—The northern side of Euripo Channel about 2 miles westward of Aliveri Bay forms a small bay, which has shallows, rocks, and depths of less than 5 fathoms extending one-third of a mile from its head and northwestern shore.

Paleo Khora (Amarinthos), a large farming town, is built on the coast 6 miles westward of Aliveri Bay, and 1 mile inland of this town is the village of Vathya (Ano

Vathia). The open anchorage off Paleo Khora is not very secure, being exposed especially to southwesterly winds. The depths 500 yards offshore exceed 5 fathoms, and within 500 yards of the shore they shoal gradually.

CABLE.—A submarine cable runs, from the point close eastward of Amarinthos, southward to a point about 1 mile westward of Ayioi Apostoloi (sec. 5-48). Anchoring, fishing and dragging are prohibited within 200 yards of the cable area.

5-59 Paleo Khora (Amarinthos) has a population of about 1,100. The town has a factory for bricks, a large number of which is exported to the rest of Greece. Provisions are procurable in abundance, and drinking water can be supplied by means of barrels. Petroleum and gasoline are available in small quantities. A post office and a telephone office are located here.

5-60 Coast.—Between Paleo Khora and Port Eretria, 5 miles westward, the coast is indented by a bay having a width of 3 miles in its entrance. The outer part of the western half of this bay is encumbered with shallows, rocks, and islets. Anchorage is possible inside of these dangers in a depth of 10 to 13 fathoms at a distance of one-half of a mile off the northern shore. To reach this anchorage, vessels should follow the shore from east to west at a distance of one-half of a mile. No reason exists for using this anchorage unless a vessel is caught in a strong northwesterly wind while in this vicinity.

5-61 Port Eretria (Nea Psara) ($38^{\circ}23' N.$, $23^{\circ}48' E.$, *H. O. Chart 4123*), opposite Oropos Bay on the southern side of Euripo Channel, is fronted by dangers in addition to those in the bay just described. Behind this port with its town stands a hill, 427 feet high, on which are the ruins of an acropolis. Forming the eastern limit of the port is a rocky islet. About one-fourth of a mile southward of the islet lies a sunken rock, and one-half of a mile south-southwestward of this same islet lies a dangerous rocky shoal with depths of $1\frac{1}{2}$ to 3 fathoms. This shoal is easily discerned by the color of the water. Extending one-half of a mile

southward from the western limit of the port are rocks above and below water, the remains of an ancient mole. The area three-fourths of a mile westward from these remains is foul, and 1 mile west-southwestward of the light structure on the extremity of these remains is a dangerous 2-fathom rocky patch, and one-fourth of a mile farther west-southwestward is a 5-fathom rocky patch. Vessels sailing through Euripo Channel should keep to its southern side to avoid these off-lying dangers.

Depths of less than 5 fathoms extend 400 yards from the western side of the port, and similar depths extend 200 yards from the eastern shore, where a sunken rock lies off the northwestern side of the rocky islet. Between the 5-fathom curves, which are about 600 yards apart, the port has depths of 10 fathoms. Entrance to the port is difficult. Steer north-northeastward for the middle of the entrance, and when abreast of the light structure, steer northward. This port affords shelter principally from northerly winds, and to a lesser degree from westerly and southerly winds.

A light is exhibited from an iron column and hut, 19 feet high, on the rock at the extremity of the ancient mole at Port Eretria.

A light is shown on the rock at the extremity of the ancient mole at Port Eretria.

5-62 Eretria (Nea Psara), which is built on the northwestern side of the port, has a population of about 1,600. The town has a sub-customhouse and a post office. Small steamers call occasionally, and telephone service to Khalkis is available. There is a small wharf at the town available only for boats. A short pier and a mole, about 246 feet in length, are located on the northwestern side of the bay. Depths alongside are suitable for boats.

5-63 The coast from Port Eretria trends first 3 miles west-northwestward and then about the same distance westward to Lephkandilis. Depths of less than 5 fathoms extend offshore as far as one-third of a mile.

Lephkandilis (Ormos Levkandi) (Lefkandi), a small bay open to the south and southeast, has general depths of 13 to 8

fathoms. Depths of less than 5 fathoms extend only a short distance from its northern shore. This bay is the commercial harbor for the inland town of Vasilikon. Besides a settlement, several brick factories are located at this bay. In the western part of the bay is a pier, reported partly demolished (1961), with depths of 19 to 23 feet alongside its outer western side, where vessels load whitenstone.

Pilotage is compulsory for Lephkandilis. Vessels should direct their signals to the lighthouse on the western side of Burji Channel.

5-64 Coast.—Lephkandilis and Burji Channel, 2 miles westward, are separated from each other by land extending three-fourth of a mile southward. Depths of less than 5 fathoms extend 300 yards from the southeastern side of this tongue of land. See paragraph "Caution" under Burji Channel.

A dangerous wreck lies about 2 miles southeastward of Ormos Lephkandilis.

5-65 OUTER KHALKIS HARBOR ($38^{\circ} 26' N.$, $23^{\circ} 37' E.$, *H. O. Chart 4123*), entered from Euripo Channel by Burji Channel, extends about 3 miles in a northwesterly direction to Steno Pass, the southern entrance to Inner Khalkis Harbor. This harbor forms a part of the inner route separating Euboea Island from the mainland of Greece. Increasing in width from one-half of a mile in its southern part to 1 mile in its northern part, the harbor has general depths of 30 to 20 feet, but depths considerably less than 18 feet extend as far as 600 yards from the southern shore and the northern half of the eastern shore. The western shore and the northern shore are each indented by two small bays.

Anchorage is possible anywhere in a convenient depth, soft mud. Vessels should take soundings when approaching a selected anchorage near the shore. The best berth is northwestward of Passa Island.

5-66 Burji Channel, the southern entrance to Outer Khalkis Harbor, has a width of 600 yards, but the fairway having a north and south direction is reduced to a width of 500 yards by shallow banks on either side. The western half of the fairway has depths of more than 32 feet, while the eastern half has depths of 25 feet and more.

Burji Point, the projecting point on the eastern side of the channel, is a round rocky mass surmounted by an earth mound and has on its extremity the ruins of an old fort. A sandy spit extends about 150 yards southwestward from the mound. The point is a good mark for vessels approaching from the southeastward. A shoal with a depth of less than 6 feet extends about 50 yards southwestward from the spit.

Avlis Point, the unusually low projecting point on the western side of Burji Channel, has deep water 30 yards off it. Shoal water, however, fringes the shore westward and southward from the point, and 900 yards southward of the point and 400 yards offshore lies an 18-foot rocky patch.

5-67 A light is exhibited from a short square tower on the tiled roof of a dwelling standing on Avlis Point. The whole structure has a height of 29 feet.

A light buoy is moored off the extremity of the rocky shoal extending southwestward from Burji Point.

A wreck lies in Burji Channel about 360 yards southward of the light on Avlis Point.

5-68 Caution.—The coast line for $1\frac{1}{4}$ miles southeastward from Burji Point is reported to be inaccurately charted. The position of the mouth of the river discharging southeastward of Burji Point has changed, and the banks off the mouth have extended considerably southwestward. Vessels should give this part of the coast a wide berth.

5-69 Eastern side of outer harbor.—From Burji Channel the eastern shore backed by low cultivated land trends $1\frac{1}{2}$ miles in a general northwesterly direction to a point where it takes a sharp turn to the north. Some salt pans are located within the point. This part of the shore has depths of less than 18 feet extending offshore as far as 300 yards. Having turned northward, the shore continues in this direction for a distance of $1\frac{1}{4}$ miles to the entrance of Ayios Stefanos Bay. This part of the shore has depths of 6 feet extending offshore as far as 600 yards.

Passandasi, a rock 2 feet high, lies 500 yards westward of the point where the eastern shore takes a sharp turn to the northward. A light is shown on the rock.

5-70 Griniaros, a small rocky islet, lies 1.2 miles west-northwestward of Burji Channel and 400 yards off the low southern shore of the outer harbor. Immediately westward of Burji Channel the 3-fathom curve gradually increases its distance from the southern shore and passes 100 yards northward of Griniaros, its greatest distance offshore.

Megalo Vathi, the small bay forming the southwestern recess of the outer harbor, is one-third of a mile in its entrance and recedes one-half of a mile in a west-southwesterly direction. The bay has general depths of 16 to 13 feet, and depths of less than 6 feet extend 100 yards offshore. Northward of the bay are the ruins of ancient Avlis, and 1,200 yards southward of the bay is built Vathia (Avlis), a town of about 1,350 inhabitants.

5-71 Mikro Vathi, which indents the western side of the outer harbor, is entered 1,300 yards northward of Megalo Vathi. Shoal depths extend only a short distance from the shore between these two bays. Having a width of 200 yards in its entrance, this small bay recedes over 500 yards in a west-northwesterly direction. The outer part of the bay has depths of 20 to 16 feet; the inner part has depths of 10 to 6 feet in

its northern half and depths of 16 to 13 feet in its southern half. Depths of less than 3 feet extend a short distance from the shores, especially the northern one; a rock above water lies a short distance off the southern shore, along which are some quarries.

A large cement factory and three piers are located on the northern side of Mikro Vathi. Both the eastern and middle piers have depths of 10 feet alongside their heads, and are equipped with loading appliances. Water is piped to the middle pier. Three mooring buoys are located in Mikro Vathi.

5-72 Ayios Stefanos Bay, which indents the eastern part of the northern side of Outer Khalkis Harbor, has a width of one-half of a mile in its entrance and recedes the same distance in a northerly direction. The bay has depths of less than 16 feet in its outer part, and depths of less than 10 feet extend 400 yards southward from the head, which is divided into a large western part and a small eastern part by a breakwater having a depth of 10 feet at its head. Wharves available for small craft are located southeastward of the inner end of the breakwater. Some factories stand on the eastern side of the head of this bay.

5-73 Drokos Bay, located westward of Ayios Stefanos Bay, from which it is separated by a promontory extending in a south-southeasterly direction, has a width of one-third of a mile in its entrance and recedes the same distance in a northerly direction. The bay has general depths of 18 to 11 feet, but depths of less than 6 feet extend 150 yards from its head. This bay is the commercial harbor for the inland village of Drokos.

5-74 Passa Island, 60 feet high, lies 400 yards southward of the promontory between Ayios Stefanos Bay and Drokos Bay, from which it is separated by depths of 23 feet. The passage westward of the island has a least depth of 18 feet, while the passage southwestward of the island has a width of 500 yards and a least depth of 26 feet and is the southeastern approach to Steno Pass.

Anchorage.—The best berth in Outer Khalkis Harbor is 300 yards northwestward of the northwestern point of Passa Island in a depth of 23 to 20 feet.

5-75 Steno Pass (*H. O. Chart 4123*), entered westward of Passa Island, connects Outer Khalkis Harbor with Inner Khalkis Harbor. The pass extends over one-half of a mile in a general east and west direction and decreases in width from 400 yards in the eastern part to 250 yards in the western part. Depths of less than 18 feet extend from both shores and reduce the fairway to a width of 100 yards. The axis of the fairway in the eastern part extends in an east and west direction, while in the western part it takes an east-southeasterly and west-northwesterly direction. A jetty and a pier, the latter of which is used by ferryboats, are located on the southern side of the eastern part of the pass.

Perama Point, the southern entrance point of the eastern entrance of the pass, has depths of less than 23 feet extending about 60 yards from it.

Steno Pass cannot be navigated by vessels drawing more than 21 feet. Vessels having large turning circles must exercise caution.

An overhead cable crosses Steno Pass at about the midway point. The vertical clearance is about 124 feet.

A submarine cable crosses Steno Pass about $\frac{1}{2}$ mile west-northwestward of Perama Point. Anchoring and fishing are prohibited within 1 mile of the cable.

A dangerous wreck lies sunk in the western entrance to Steno Pass in a position about two-thirds of a mile west-northwest-

ward of Perama Point light structure. A fixed red light is shown from the protruding mast of the wreck.

5-76 Lights.—A light is exhibited from an iron column and hut, 19 feet high, on Perama Point.

A light is exhibited from the head of the ferry pier.

Light buoys.—Two light buoys are moored on the northern side of the fairway in the eastern and central parts of Steno Pass. One light buoy is moored on the southwestern side of Steno Pass.

Range beacons.—Three range beacons are located about 200 yards westward of Perama Point. Each beacon, 16 $\frac{1}{2}$ feet high, consists of a wooden pole painted in black and white horizontal bands and having a white triangular topmark. When in range, bearing 123°, they lead through the fairway of the western part of Steno Pass.

Two other similar beacons stand one-half of a mile westward of Perama Point. When in range, bearing 280°, they lead through the fairway of the eastern part of Steno Pass.

Three similar beacons stand on the western shore northward of Glifa Bay (sec. 5-80). In range, bearing 303°, they lead through the western part of Steno Pass.

5-77 Currents.—The tidal currents in Burji Channel seldom have a velocity exceeding 2 knots, while those in Steno Pass sometimes attain a velocity of 3 knots.

Pilots—Anchorage.—Pilotage from Burji Channel to North Harbor of Euripo Strait is compulsory. North-bound vessels should signal the lighthouse on the western side of Burji Channel for a pilot.

While waiting for a pilot or whenever the visibility is poor, vessels can obtain temporary anchorage one-half of a mile southward

of Burji Point in a depth of 42 to 47 feet, mud and sand, good holding ground.

5-78 Directions for Burji Channel and Steno Pass.—Although not easy, the navigation of Burji Channel does not present unusual difficulties. Having approached the channel from the east-southeastward, steer with the lighthouse on Passandasi (visible over the low western point of Burji Channel) bearing 327° and slightly open eastward of the ruined fort of Kara Baba, located on a hill on the western side of Euripo Strait. When abreast of the light buoy marking the rocky shoal at Burji Point, steer northward, giving the lighthouse on the western side of the channel a berth of 150 yards. Continue steering northward, and when the lighthouse on Passandasi is in range 315° with Perama Point, make a good course of 309° to pass 200 yards southward of Passandasi, after which a course can be set for Steno Pass or any other destination.

Should the light buoy at Burji Point be missing, the yellowish color of the water on the shoal at this point is easily discernible from the dark greenish color of the deep water in the fairway.

When coming from the northward and having passed 200 yards southward of the lighthouse on Passandasi, make good a course of 129° along the axis of the southern part of Outer Khalkis Harbor. When the lighthouse on the western side of Burji Channel bears 180° , steer to pass midway between this lighthouse and the light buoy off Burji Point. Having passed the light buoy, alter course to port to avoid the 18-foot patch lying 900 yards southward of the lighthouse.

Having passed 200 yards southward of the lighthouse on Passandasi, steer to reach a position about midway between Passa Island and Perama Point. When nearing Perama Point, sound the whistle to warn vessels that might be navigating Steno Pass from west to east. When the two range beacons on the southern side of the western part of

Steno Pass are in range, bearing 280° , steer for them on this bearing. As soon as the light buoys on the northern side of the fairway has been passed, steer with the range beacons on the shore northward of Glifa Bay in range, bearing 303° , or with the range beacons on Perama Point in range astern, bearing 123° . This last course leads north-eastward of the light buoy on the southern side of the fairway and into Inner Khalkis Harbor.

When a vessel is navigating Steno Pass, the 22° change in course between the two ranges must be executed with great care, because the current here sometimes attains a velocity of $3\frac{1}{2}$ knots and its deviation from the axis of the fairway is very probable. A vessel passing from west to east through the eastern part of Steno Pass may experience difficulty in taking stern bearings on the range beacons for this part; in this case, steer to keep from 60 to 100 yards off the shore at Perama Point.

5-79 INNER KHALKIS HARBOR ($38^{\circ} 27' N.$, $23^{\circ} 35' E.$, *H. O. Chart 4123*), forming part of the inner route separating Euboea Island from the mainland of Greece, is entered from the south through Steno Pass and from the north through Euripo Strait. This harbor, also referred to as South Harbor, is a circular basin having a diameter of 1 mile and general depths of 36 to 30 feet, mud. The shores, which have lesser depths extending from 100 to 400 yards offshore, especially in the southwestern and northern parts of the bay, are indented by three small bays. A depth of $3\frac{1}{2}$ fathoms lies about 325 yards south-southwestward of the center of the swing bridge, which spans Euripo Strait near its southern end. An isolated depth of $1\frac{3}{4}$ fathoms lies about 700 yards westward of the $3\frac{1}{2}$ fathom patch.

5-80 Southern, western, and northern sides of Inner Khalkis Harbor.—The southern shore of the inner harbor trends about

1,400 yards westward from Steno Pass, and near its middle part projects slightly to the north. Depths of less than 18 feet extend 100 yards offshore, and as far as 400 yards from the head of the small bay at the western limit of this shore.

Glifa Bay, the small shallow bay indenting the southern part of the western shore, is crossed at its head by a railroad bridge. On the northern side of this bay is a hill. A pair of range beacons (sec. 5-76), are eastward of this hill. From the bay the western shore trends two-thirds of a mile north-northeastward to the northern shore and has depths of less than 18 feet extending 150 yards offshore.

The northern shore, having a length of 1,400 yards between the western shore and Euripo Strait, has depths of less than 18 feet extending 100 yards offshore close westward of Euripo Strait, and farther westward these depths increase their distance offshore as far as 240 yards. Close westward of Euripo Strait is a small jetty, having a length of 136 feet and depths of 12 to 14 feet alongside, where small vessels can handle cargo direct to railroad cars. At the junction of the northern and western shores is a small wharf with a depth of 6 feet at its head.

A detached 18-foot patch lies 300 yards south-southwestward of the swing bridge at Euripo Strait, and a detached 9-foot patch lies 300 yards off the middle of the northern shore. The first-mentioned patch is in the approach to Euripo Strait.

5-81 This section has been deleted.

5-82 Eastern side of Inner Khalkis Harbor.—The promontory that forms the northern side of Steno Pass also forms the eastern side of the inner harbor. About one-third of a mile north-northeastward of Steno Pass is a small shipyard sheltered by two small breakwaters. A chimney is visible in this vicinity. About 300 yards northward of the shipyard is Vourkari Bay, a very shallow inlet receding in an easterly direction and fronted by depths of less than 18 feet. On the northern side of the entrance are some barracks, which form the southern limit of the city of Khalkis.

5-83 Anchorage.—Inner Khalkis Harbor affords safe anchorage in depths of 36 to 30 feet. During the winter northwesterly winds sometimes blow with unusual intensity. The currents principally follow the eastern shore and in the middle part of the harbor and especially in the western part their influence is almost insignificant. As the harbor northward of Euripo Strait is the usual anchorage for the city of Khalkis, vessels anchor only temporarily in Inner Khalkis Harbor while waiting for the opening of the swing bridge in Euripo Strait. A recommended berth is 600 yards south-southwestward of the swing bridge and 400 yards westward of the northern entrance point of Vourkari Bay. If this berth is occupied, a vessel must select some other berth where she will not interfere with traffic and from where she can get under way for Euripo Strait with the least amount of maneuvering.

5-84 EURIPO STRAIT ($38^{\circ}28' N.$, $23^{\circ}36' E.$, *H. O. Chart 4123*), the narrowest part of the inland route separating Euboea Island from the mainland of Greece, con-

nects Inner Khalkis Harbor to the south with Atalante (Talanta) Channel to the north. Extending about 1 mile in a north-northeasterly and south-southwesterly direction, the strait has an average width of 300 yards in its southern part, while the northern part widens out to form North Harbor, the usual anchoring place. The narrow and deep fairway in the southern half is bordered by shoal water on either side, where small craft can anchor. The southern entrance, where the strait has its minimum width of 129 feet, is crossed by a swing bridge.

A submarine cable crosses the channel alongside the bridge.

A submarine pipeline crosses the channel about 200 feet above the bridge. Anchorage is prohibited within a distance of 400 feet northward of the bridge.

Passage through Euripo Strait is limited to vessels whose draft does not exceed 24 feet and whose beam does not exceed 98½ feet. The navigation of the strait presents serious difficulties on account of the strong currents.

5-85 The western side of Euripo Strait for 600 yards northward of the swing bridge is indented by a shallow bay, in which there are two piers, and a mooring buoy. The land westward of the bay rises to a hill, 223 feet high, surmounted by the ruins of Fort Kara Baba. Close northward of the bay is another much smaller bay with shoal depths.

Point Xilofanaro, located 1,200 yards northward of the swing bridge, is a slight projecting point on the western side of North Harbor. Depths of less than 21 feet extend 200 yards eastward from this point, and similar depths extend offshore 120 yards between this point and the bay immediately northward of the swing bridge.

A light is shown on Point Xilofanaro.

5-86 The eastern side of Euripo Strait along its narrow southern half is bulwarked and has, in places, depths of less than 16 feet, extending as far as 70 yards offshore,

and depths of less than 21 feet as far as 120 yards; along this part extends the city of Khalkis. Between the swing bridge and a semicircular wharf, 250 yards northeastward, the sea wall has depths of 4 feet or less extending a short distance from it. A jetty with a depth of 13 feet at its head extends 40 yards west-northwestward from the sea wall about 200 yards north-northeastward of the semicircular wharf, and the intervening sea wall between them has depths of 14 to 3 feet, where small vessels can secure. The public square is inshore of the jetty. The sea wall fringed by shoal depths continues for another 320 yards in a north-northeasterly direction and terminates in a small sunken breakwater extending 30 yards west-northwestward from it.

From the northern termination of the sea wall the eastern side of North Harbor trends 1,300 yards northeastward to the point of Kaki Kefali, and is indented by three small bays open to the northward. These three bays, shallow and full of rocks, are separated from each other by projecting points, about 50 yards off which are depths of more than 29 feet. A wreck lies close westward of the projecting point between the middle and the eastern bay.

5-87 Lights.—Lights are shown from the heads of the two piers on the western side of Euripo Strait. A light is exhibited from a square tower, 39 feet high, standing on the point of Kaki Kefali.

Light buoys.—Light buoys mark the shoal water on either side of the northern limit of the narrow part of Euripo Strait. The light buoy on the eastern side is can-shaped and shows a quick flashing red light, while the light buoy on the western side shows a flashing green light. The great velocity of the current causes them to labor exceedingly at their moorings and occasionally to break away.

A mooring buoy is located about 350 yards north-northwestward of the bridge.

5-88 Swing bridge.—The southern entrance to Euripo Strait is spanned by a swing bridge in two parts, both opening northward and fitted into masonry abutments for that purpose. The principal factor governing passage through the bridge is the current. The port office is close eastward of the bridge.

Bridge signals.—The position of the two arms of the bridge (open or closed) is immediately apparent to vessels by day, but by night a red fixed light is exhibited from the middle of the bridge when it is closed. This light remains visible while the bridge is being opened, and only when the bridge is completely open does it disappear; then two green fixed lights appear on the western abutment of the bridge and two red, fixed lights on the eastern abutment. These green and red fixed lights on the sides of the bridge help a vessel to keep in the fairway and are much lower than the night answering signals given in the following paragraph.

A vessel requiring the bridge to be opened either by day or at night should sound on

her whistle, five blasts having a total duration of 20 seconds. This signal will be answered in accordance with the day or night signals in the accompanying table, either with regard to the opening of the bridge or indicating that passage is prohibited. Once the answering signal has been made the whistle signal must not be repeated. The day signals are exhibited from a mast on the western side of the bridge, and the night signals from the middle of the bridge.

5-89 Regulations.—The swing bridge is open at any time of the day or night for a steamer proceeding with the current. In case of a naval vessel or a vessel engaged on urgent government duty, the bridge is open irrespective of the direction of the current or at slack water. Captains of vessels are responsible in such exceptional cases and give their reports to the post office.

In the case of sailing vessels or motor vessels the bridge is opened only if required by two such vessels at least, the current being favorable or slack. In exceptional cases the bridge is open by day for only one such vessel if she has a cargo of perishable foodstuffs.

Day signals	Night signals	Meaning
Three black balls in a vertical line. Bridge closed. Passage completely prohibited.	A green light over a white light over a red light.	Passage prohibited.
A cone point down under two cones points together.	A white light between two green lights.	Bridge open to southbound steamers and sailing vessels at slack water or with the current. Passage to the northward forbidden.
A cone point up between two black balls.	A white light between two red lights.	Bridge open to northbound steamers and sailing vessels at slack water or with the current. Passage to the southward forbidden.
A cone point down under two cones points together and a red ball beside the hoist.	A white light between two green lights and a red light beside the hoist.	Bridge open to southbound naval vessels against the current. Passage forbidden to the northward.
A cone point up between two balls and a red ball beside the hoist.	A white light between two red lights and a red light beside the hoist.	Bridge open to northbound naval vessels against the current. Passage forbidden to the southward.

If the bridge is already open, motor vessels are permitted to pass through at night, providing the current is suitable. The bridge will also be opened at night, but only up to midnight, for motor vessels that have paid their dues, providing the current is suitable.

In the event of bad weather or a strong wind, the bridge is not opened even with a favorable current if the captain of the port or the bridge engineer considers that the bridge is subject to damage and that a safe passage cannot be guaranteed.

The bridge will remain closed for one-half of an hour prior to the scheduled time of trains; this period may be increased to 1 hour when the current is unfavorable.

When the bridge is completely open, a vessel should approach along the axis of the fairway to within 440–550 yards at a suitable speed, and then pass through the bridge. Responsibility for any damage to the bridge or craft in the vicinity rests with the captain or company owning the vessel.

Two or more vessels wishing to pass through the bridge at the same time take precedence as follows: Passenger vessels, cargo vessels, motor vessels, sailing vessels, and pulling boats. The distance between large vessels should not be less than 330 yards, and that between smaller vessels (motor vessels, sailing vessels, etc.) not less than 110 yards.

5-90 Anchorage.—North Harbor is the usual anchorage for the city of Khalkis. Vessels whose draft permits them to anchor in the lesser depths along the eastern side of Euripo Channel should take their berths during slack water or when the currents are weak during quadrature. The depths in North Harbor are 10 to 12 fathoms, mud. Vessels are exposed to violent gusts during northerly and northeasterly winds.

5-91 Tides and currents.—The high water interval at full and change at the northern end of Euripo Strait is 4h. 40m. The spring range is from 2.6 to 4 feet; the neap range, 2.6 feet. Both high and low water occur about 1¼ hours earlier at the southern end of the strait, but the range is small, being only 1 foot at springs.

The level of the water in the strait is affected by small seiches, which take place independently at the northern and southern ends of the strait. These seiches are of no importance at the northern end during springs, but during neaps these seiches at both the northern and southern ends cause continual and irregular changes in the level of the water.

As the time and the range of the tide is different at the two ends of the strait, the tidal current at springs has a great velocity and changes direction at half-tide. At neaps, on the other hand, the current is weak and variable, having lost its tidal character, because the difference in the range between the two ends of the strait is small and the seiches have their greatest effect on the level of the water at this time.

The approximate times of high and low water at the northern end, slack water, and maximum current during transit of the full moon at midnight are as follows:

2:05 a. m. and 2:25 p. m.—Slack water; south-going current commences.

4:40 a. m. and 5:00 p. m.—High water; south-going current strongest.

8:30 a. m. and 8:50 p. m.—Slack water; north-going current commences.

11:10 a. m. and 11:30 p. m.—Low water; north-going current strongest.

The currents change regularly from about 3 days before new and full moon to about 7 days after new and full moon; during this period the times of turn and of greatest velocity may be found by computing the

times of high and low water. Springs occur about $11\frac{1}{2}$ days after new and full moon; the velocity of the current, both north-going and south-going, is 6 to 7 knots at high and low water at the northern end of the strait. The velocity decreases about 1 knot for each day before or after springs. The duration of slack water is about 10 minutes.

From quadrature to about 4 days before new and full moon the currents are irregular, unpredictable, and change directions at frequent intervals. During this period they have a velocity of $\frac{1}{2}$ to 1 knot.

The weather conditions prevailing at any time greatly influence the direction and most of all the velocity of the current. When strong north or south winds are blowing in the open waters, the current does not follow the 6-hour interval between changes of direction, but sets for a greater time interval with the prevailing wind and has a considerably greater velocity. Sometimes under these conditions, immediately after its change, the current returns to the direction of the prevailing wind. During southerly and southwesterly gales, when water is banked up to southward, the rate of the north-going current may be increased to 8 or $8\frac{1}{2}$ knots, with a corresponding decrease in the rate of the south-going current. After the gale, when the water level to southward again falls to normal, the rate of the south-going current may be increased to 8 or $8\frac{1}{2}$ knots, with a corresponding decrease in the rate of the north-going current, till the water level on the northern side has also fallen to normal.

5-92 Pilotage for Euripo Strait is compulsory except for Greek passenger ships, Greek vessels under 150 tons and Greek and other foreign naval vessels. Vessels either in North Harbor or in Inner Khalkis Harbor should direct their signal for a pilot to the signal station at Fort Kara Baba.

5-93 Directions.—When the bridge comes in sight, ask for its opening by the prescribed signal of five blasts on the whistle. If bound southward, anchor in North Harbor (northward of the light

buoys) while waiting for the bridge to open, as well as for the embarkation of the pilot. Select a berth from where the bridge signals are visible. North-bound vessels anchor in Inner Khalkis Harbor (sec. 5-79). Immediately upon notification by the established signals that the bridge will be opened, get underway and maneuver to be on the axis of the strait with the aid of the two light buoys. Pass through the strait as rapidly as possible after the bridge is completely open.

When passing through the especially narrow part of the strait beside the bridge, give utmost attention to the helm, as whirlpools are formed along the bulwarked parts and these influence the bow of the vessel. If bound northward, pass the light buoys with the same precaution, as the currents are strong in their vicinity. Avoid any delay after the opening of the bridge, because in the meantime it is likely that the direction or the state of the current may change, a situation which is most usual during quadrature.

5-94 KHALKIS (CHALCIS) (EURIPO) (CHALKIS) ($38^{\circ}28'N.$, $23^{\circ}36'E.$, H.O. Chart 4123), the capital of Euboea Island, has a population of about 30,000. Besides being a tourist center, the city has some commerce.

Berths.—On the eastern side of North Harbor, there are depths of about 14 feet alongside the quays between the circular quay and the north pier. The remainder of the quays along the eastern side have depths of 3 to 6 feet.

In the South Harbor, the railroad pier located westward of the swing bridge has a depth of 12 feet alongside. A small pier about 200 yards southward of the bridge on the eastern side of the harbor has a depth of 18 feet along its head. This pier can accommodate a 400-foot vessel with a draft not exceeding 17 feet. Main Quay, located close southward of the small pier, has depths of 16 to 22 feet alongside. A depth of 25 feet exists about 60 feet off the quay with depths of 3 to 24 feet along the quay between the small pier and the bridge.

In South Harbor are four cranes of $1\frac{1}{2}$ to 9 ton capacity. A small tug is available.

Supplies.—Provisions are available in moderate quantities. Untreated water of good quality, suitable for drinking or for use in boilers, is available at Main Quay; however, there are no water barges. Fuel oil is available at the north end of the berthing area in North Port.

Communications.—A branch of the Greek railroad system on the mainland terminates at Khalkis, which also has good highway connections with the mainland and the island of Euboea. Telegraphic and telephonic service is available.

Greek vessels make regular calls at Khalkis.
Hospital.—Hospital facilities are available.

5-95 ATALANTE (TALANTA) CHANNEL (VORIOS EVVOIKOS KOLPOS) (*H. O. Charts 4123 and 4124*), separating the northern half of Euboea Island from the mainland of Greece, trends in a general northwesterly direction for a distance of 42 miles from Euripo Strait to the Likhadhes Islands, lying in the approach to Maliakos Gulf. The width of the channel varies from $3\frac{1}{2}$ to 11 miles, the latter figure being the width at Atalante Bay. No off-lying dangers exist off either shore, and the depths are great at small distances from them, except for Cape Gaidaro and Cape Kerata. The channel is not subject to unusual weather conditions except for the strong gusts of wind that descend from the Kandili Mountains, and the same can be said about the high coast of the mainland opposite these mountains. The navigation of this channel presents no difficulties.

Having left Atalante Channel, vessels proceed either westward to Maliakos Gulf or northeastward through Oreos Channel, from which they enter either the Gulf of Volos, or the Aegean Sea through Trikiri Channel.

5-96 Anchorages.—Anchorage is possible anywhere at the head of Atalante Channel, which is the area southeastward of Cape Mnima. The depths range from 17 to 10 fathoms, sand, and the only dangers are those at Cape Gaidaro and those lying eastward and northeastward of Kaki Kefali. Vessels are sufficiently sheltered even from northwesterly winds by Cape Gaidaro, but during the winter vessels will find greater safety at a distance of less than 1 mile from Khalkis.

Refuge rarely becomes necessary in Atalante Channel. No safe anchorage except that afforded by Aidepsos Gulf is obtainable

along the northeastern side of the channel. The irregular southwestern side with projecting promontories affords good anchorage at Port Scroponeri, Port Larmes, and Atalante Bay.

Currents.—The currents in Atalante Channel are tidal. They follow the general behavior of the currents in Euripo Strait.

5-97 NORTHEASTERN SIDE OF ATALANTE CHANNEL—Coast (*H. O. Chart 4123*).—Between Kaki Kefali, the northeastern limit of North Harbor of Euripo Strait, and a slight projecting point, 1 mile northeastward, the coast of Euboea Island recedes over one-half of a mile in a southeasterly direction to form a bay with depths of less than 5 fathoms extending as far as one-fourth of a mile from its shores. A dangerous rock with a depth of less than 6 feet lies about 100 yards northeastward of Kaki Kefali, and about 350 yards further east-northeastward lies a 1-fathom patch. Foul ground extends 800 yards westward from the northeastern point of this bay, and two-thirds of a mile westward of this same point lies a $4\frac{1}{4}$ -fathom shoal. Vessels intending to anchor in depths of 8 to 5 fathoms in the outer part of the bay should steer a southeasterly course, giving the lighthouse on Kaki Kefali a berth of one-half of a mile.

5-98 Vathonda Bay (Ormos Vatondas) ($38^{\circ}30'$ N., $23^{\circ}38'$ E., *H. O. Chart 4123*), entered 2 miles northeastward of Kaki Kefali, is 1 mile wide in its entrance and recedes one-third of a mile in an easterly direction. Shoal water extends 200 yards westward from the southern entrance point, a narrow point projecting first westward and then southwestward for a total distance of 800 yards. The bay has depths of less than 5 fathoms in most of its outer part, and shoal depths extend a considerable distance

from its shores. In this bay small vessels are sheltered against all weather conditions; the principal berth is southward of the northern entrance point.

Vathonda (Nea Artaki), a town of about 2,100 inhabitants, is built along the shore of Vathonda Bay. The inhabitants are engaged in agriculture and fishing.

A light is shown from the northern entrance point of Vathonda Bay.

5-99 The coast from Vathonda Bay trends first 4 miles north-northwestward and then $1\frac{1}{3}$ miles westward to Politika Bay. Depths of less than 3 fathoms extend over 200 yards offshore where the coast bends, and at this part of the coast, called Vrisakia, are some wells, a factory with a conspicuous chimney, and two small wharves. The larger and western wharf has a depth of 6 to 10 feet at its head.

Psakhna, a town of 3,000 inhabitants, is located 2 miles inland along this part of the coast. It is a center for the production of olive oil. About one-half of a mile southwestward of Psakhna is the village of Kastela (Kastella). Psakhna has a telegraph office; Kastela, a post office.

5-100 Politika Bay, having a width of 2 miles between Cape Glarometis on the east and Cape Mnima on the west, recedes slightly to the north and has depths of less than 5 fathoms extending over 300 yards from its low sandy shore. Anchorage is possible anywhere in the bay, which, however, is not sufficiently sheltered from westerly winds. At the head of Politika Bay is a small settlement, which serves as the commercial harbor for the inland town of Politika. The whole region around Politika Bay is a place of unusual natural charms, and agricultural products are raised in abundance.

Foul ground exists 1-1/5 miles 083° from Cape Mnima Light.

Cape Mnima, the western entrance point of Politika Bay, is steep-to. Vessels bound

for Khalkis can pass Cape Mnima at a short distance, after which they should keep on a line between the lighthouse on this cape and that on Kaki Kefali until having passed the shoals at Cape Gaidaro.

A light is exhibited from a white iron tower, 10 feet high, on Cape Mnima.

5-101 Coast (*H. O. Charts 4123 and 4124*).—From Cape Mnima the coast trends in a general northwesterly direction for a distance of 15 miles to Limni Bay, and considerable depths are found along the greater part of this coast. Paralleling this coast at a short distance inland are the Kandili (Kandhili) Mountains, which attain their greatest height of 3,994 feet in Mt. Kurumbli (Kourvoulou). As northerly and northeasterly winds descend with violence from the high and precipitous coast along these mountains, vessels, especially sailing vessels and small craft, should keep to the middle of Atalante Channel.

Near the coast about 11 miles northwestward of Cape Mnima is the monastery of Agios Nikolos Galatas (Ayios Nikolaos), the white buildings of which are only visible when bearing from 004° to 049° , as high trees hide them on other bearings. About 2 miles northwestward of the monastery and the same distance southeastward of Limni Bay stands a factory with a conspicuous chimney. The inhabitants of the small settlement of Katounia near the factory are engaged in exporting magnesite ore. The factory has a pier 76 feet long with a depth of 9 feet at its head. The pier is equipped with a $1\frac{1}{2}$ -ton and a 3-ton crane. A tug and lighters are available for handling ore. Large vessels that anchor here to load use both anchors and secure their sterns to the shore.

5-102 Limni Bay, a small bay open to the southward, has considerable depths. The yellow one-storied building in the eastern

part of town is conspicuous. As steep hills rise behind the town, it is difficult to discern conspicuous objects at night.

Anchorage.—Anchorage may be obtained close off the head of the main pier on the northern side of Limni Bay. However, the anchorage is foul for a distance of about 150 yards south-southwestward of the pier. As the bottom shelves very rapidly, the holding ground of the anchorage is poor. The anchorage and the waterfront are exposed to all winds from the southeast to west-northwest, and cargo cannot be worked in heavy weather.

A light is shown from Point Loumitsa, the western point of Limni Bay. A mooring buoy lies about 290 yards southeastward of the light structure.

Pilots are not available.

5-103 Limni, one of the more important towns on Euboea Island, has a population of about 3,350. The town has postal and telegraphic facilities. Coasting vessels make regular calls.

Piers.—The main pier on the northern side of the bay has a length of 70 feet and a depth of 9 feet at its head.

The pier at the turpentine factory in the southeastern part of the town has a length of 80 feet and a depth of 9 feet at its head.

Gasoline, fuel oil, and lubricants are available in small quantities.

5-104 The coast (*H. O. Chart 4124*) of Euboea Island trends $13\frac{1}{2}$ miles in a north-westerly direction from Limni Bay to Aidepsos Gulf. Along the whole length of this coast are no dangers, and shoal water does not extend offshore more than 400 yards in places.

Between Limni Bay and Cape Ianitsa (Yianitsa), $11\frac{1}{2}$ miles westward, the coast recedes slightly northward to form a small bay with great depths unsuitable for anchorage. Cape Ianitsa is bordered by shallow water on its southern side.

From Cape Ianitsa the coast with rocks under water a short distance from it trends 3 miles northwestward to the slightly projecting point of Cape Arakhli. About two-thirds of a mile northward of Cape Arakhli

is the village of Rovies (Roviais), and two-thirds of a mile farther northward of the village is a watering place with some water-mills. At the locality of Kamini, 1 mile northwestward of the watering place, are some warehouses on the shore.

Between the locality of Kamini and Cape Stavros, $5\frac{1}{2}$ miles westward, the coast recedes slightly northward to form a small gulf, at the head of which is Monastery Bay (Ormos Monastiriou), a small bay with great depths along its shore. About 2 miles north-northeastward of Cape Stavros is Mt. Balanti (Telethron Oros), 2,890 feet high. The southern slope of this mountain has a table-land, where is built the village of Gourgovitsa. Cape Therma, 2 miles west-northwestward of Cape Stavros, is so called from the hot sulphur springs located near it. A light is shown from the southern extremity of Cape Therma. Two lights are shown from the head of the pier about 400 yards northwestward of Cape Therma.

5-105 Aidepsos Gulf (Kolpos Aidhipsou) ($38^{\circ}52' N.$, $23^{\circ}02' E.$, *H. O. Chart 4127*), entered immediately westward of Cape Therma, affords the only sheltered anchorage along the northeastern side of Atalante Channel. The gulf has a width of almost $2\frac{1}{2}$ miles in its entrance, and its penetration toward the north exceeds 2 miles. Gialtra Bay (Ormos Yialtron), the western continuation of the inner part of the gulf, has a length of 2 miles and an average width of one-half of a mile. The gulf, together with Gialtra Bay, has depths of 17 to 25 fathoms. Rocky shoals extend as far as one-fourth of a mile from the western side of the gulf, but elsewhere the gulf is free from dangers.

Landmark.—At night the very large hotels of Loutra Aidhipsou are visible from seaward. They are conspicuous in the daytime when their light color reflects the sunlight.

A light is shown from the southern side of the entrance to Gialtra Bay.

Foul ground lies about 1 mile west-north-westward of the light.

5-106 Anchorage.—The best permanent anchorage is in the northeastern part of Aidepsos Gulf. A good berth is in a depth of 11 fathoms at 400 to 300 yards west-southwestward of a beacon. Vessels approaching this berth, as well as any other berth, should take soundings.

The best anchorage at Loutra Aidhipsou is off the easternmost pier. The holding ground of sand and mud is not good, and the depths increase suddenly close offshore.

In very rough weather vessels take shelter off the southern shore of Gialtra Bay, where the holding ground is good.

5-107 Settlements.—Aidepsos (Aidhipsos), a town of about 1,100 inhabitants, is located one-half of a mile eastward of the small settlement on the shore at the northeastern part of the gulf; and on Cape Therma, the eastern entrance point of the gulf, are the hotels and houses of Loutra Aidhipsou. A small settlement is located on the shore of the eastern of two coves indenting the southern side of Gialtra Bay; it serves as the commercial harbor for the town of Gialtra (Yialtra), an agricultural community located one-half of a mile to the southward.

A pier 262 feet long is about 400 yards northwestward of Cape Therma.

Provisions in large quantities are procurable in the summer at Loutra Aidhipsou, which also has telegraphic and telephonic facilities. Steamers call.

5-108 Coast.—From the western entrance point of Aidepsos Gulf the coast trends first 2 miles southwestward and then 6 miles westward to Cape Lithada. Along the eastern part of this coast the land rises to heights of 2,034 feet and farther inland attains a height of 2,428 feet in Xerosouvala. Shallow water and rocks under water do not extend offshore more than 250 yards.

St. Georgios (Ayios Yeoryios) Bay, a small bay at the middle of that part of the coast trending westward, is the commercial harbor for Lithada (Likhada), a village located 1 mile northwestward of the bay. The small settlement of Paleokhori (Paliokhori) is located 1 mile north-northeastward of the

bay. Shallow water of less than 3 fathoms extends 200 yards from the shore westward of the church standing at the head of the bay. Small vessels can anchor in depths of more than 6 fathoms in a position south-southeastward of the church and from 200 to 300 yards off the northern shore. A dangerous wreck with 6 feet of water over it lies sunk about 300 yards southwestward of the church.

5-109 Cape Lithada (Kinaion) (Likhada Point), the westernmost extremity of Euboea Island, has depths of less than 3 fathoms extending 600 yards from its southern and western sides. A conspicuous shrine, or church, stands on the cape, the extremity of which is marked by a pillar.

The western coast of Euboea Island trends 3 miles north-northeastward from Cape Lithada to Cape Vasilinas. Depths of less than 3 fathoms extend offshore in places as far as 300 yards.

5-110 Cape Vasilinas (Vasilina) ($38^{\circ}52' N.$, $22^{\circ}51' E.$, *H. O. Chart 4127*), the southern entrance point of Oreos Channel (sec. 5-147), is low and sandy, like the coast between it and Cape Lithada. About $1\frac{1}{2}$ miles east-southeastward of the cape rises Mt. Elias (Ilias), 2,200 feet high, with a church on its summit.

A light is shown from Cape Vasilinas.

5-111 LIKHADHES (LIKHADA) ISLANDS ($38^{\circ}49' N.$, $22^{\circ}49' E.$, *H. O. Chart 4127 and plan*) occupy the northern half of the western entrance to Atalante Channel. This low group, consisting of one large island and numerous smaller ones, is of considerable danger to vessels entering Atalante Channel from the northward.

5-112 Monolea (Monolia), the northernmost and largest of the Likhadhes Islands,

lies 600 yards westward of Cape Lithada. Extending about 1,400 yards in a west-northwesterly and east-southeasterly direction, the island has a height of 54 feet. Numerous small islets, together with foul ground, extend one-half of a mile southward from the island, and the southwestern extremity of this dangerous area is a detached $3\frac{1}{4}$ -fathom patch lying 1,600 yards south-southwestward of the northwestern point of the island. About 400 yards southwestward of this same point of the island lies a detached $2\frac{3}{4}$ -fathom patch. On the southern side of Monolea is a small fishing settlement.

Likhada Passage, which separates Monolea from Cape Lithada, should be navigated only by small vessels having local knowledge. As shallow depths extend 500 yards north-northeastward from the eastern point of Monolea, the fairway with a width of 200 yards and a least depth of $4\frac{1}{2}$ fathoms is just off Cape Lithada. The currents, influenced by the prevailing winds, have a usual velocity of 2 knots. A wreck lies in this passage.

5-113 Strongyli (Strongili), the southernmost islet of the Likhadhes Islands, lies about 1 mile south-southwestward of Cape Lithada. This cultivated islet is surrounded by deep water except for a rocky 4-fathom patch lying 400 yards eastward of it.

Research Rock, a rocky $4\frac{1}{4}$ -fathom patch, lies 1,400 yards east-southeastward of Strongyli.

Between the low islets lying southward of Monolea and the northern end of Strongyli, a low sandy tongue with a church on it, is Strongyli Passage. Although the fairway is 400 yards in width, the passage is not recommended, especially at night.

Two wrecks lie about 700 and 1,100 yards, respectively, northwestward of the light on Strongyli Islet.

A light is exhibited from a white cylindrical masonry tower and dwelling, 40 feet high, that stands on the summit of Strongyli.

5-114 Knemis (Knimis) Channel, the principal western entrance into Atalante Channel from the north, is over 1 mile wide between Strongyli on the north and Cape Knemis (sec. 5-133) of the mainland on the south. Navigation is easy and free of dangers except for Research Rock and the shallow depths extending a short distance from Cape Knemis. An easterly or a westerly course that leads one-half of a mile northward of Cape Knemis is recommended. Vessels bound for Oreos Channel should give the northwestern point of the island of Monolea a berth of one-half of a mile.

Currents.—The east-going current commences to run in Knemis Channel at about 3 hours after low water; the west-going current, at about 3 hours after high water. Both currents are greatly affected by the prevailing winds; although their usual rate is about $1\frac{1}{2}$ knots, they often attain a velocity of 3 knots.

Tides.—The high-water interval at full and change at Knemis Channel is 9h. 30m. Springs rise $2\frac{1}{2}$ feet; neaps, $1\frac{3}{4}$ feet.

5-115 SOUTHWESTERN SIDE OF ATALANTE CHANNEL.—Cape Gaidaro (Gaidharos) ($38^{\circ}30' N.$, $23^{\circ}33' E.$, *H. O. Chart 4123*), located $3\frac{1}{2}$ miles northwestward of North Harbor of Euripo Strait, is the northern extremity of the mainland forming the western side of the head of the Atalante Channel. Rocks under water and then shoals extend 1,200 yards northward from this low and sandy cape; these dangers are caused principally by earth descending from Mt. Ktypa. Vessels should keep over to Cape Mnima when rounding Cape Gai-

daró. A buoy is moored northward of Cape Gaidaro.

5-116 Coast.—From Cape Gaidaro the coast trends 2 miles south-southwestward and then west-northwestward to form a bay open to the northwest. Gaidaro (Gaidharos) Island, extending two-thirds of a mile in a north and south direction and having a dark color that stands out well against the sandy hills in the background, is separated from the southern shore of the bay by a narrow channel with a depth of 9 fathoms. A small group of rocks, some above water, lies 500 yards northward of Gaidaro Island, from which it is separated by depths of 11 fathoms.

Mt. Ktypa (Ktipas), 3,356 feet high, rises 1 mile southward of Gaidaro Island.

From Gaidaro Island the irregular coast with depths of less than 5 fathoms extending offshore 200 yards in places trends $4\frac{1}{2}$ miles west-northwestward to Cape Tamera (Tourla), the southeast limit of Port Scroponeri. Cape Tamera is free of dangers and rises to a hill, 820 feet high.

5-117 Port Scroponeri (Skroponeri), entered between Cape Tamera and Cape Gatza, $1\frac{1}{2}$ miles northwestward, recedes about 3 miles in a westerly direction and has a width of $\frac{2}{3}$ to 1 mile. Having depths of 20 to 18 fathoms and no dangers along its shores, the port affords anchorage sheltered against all weather conditions. In the southwesternmost part of the port is an ore-loading pier with a length of 65 feet and a depth of 17 feet about 10 feet off its head. The Scroponeri Mountains (Ptoon Oros) extend along the southern side of the port and terminate in the 820-foot hill at Cape Tamera.

Cape Gatza (Kantza), the northwestern entrance point of Port Scroponeri, is the termination of a conspicuous promontory extending eastward for 2 miles and having a width of 1 to $\frac{1}{2}$ mile. Gatza, a steep-to,

rocky islet, lies one-half of a mile southeastward of Cape Gatza, from which it is separated by depths of 20 fathoms.

Landmarks.—Useful landmarks for Port Scroponeri include the following: the 820-foot hill at Cape Tamera; the islet, Gatza; and Cape Gatza.

5-118 Anchorages.—Vessels may anchor in any part of Port Scroponeri in depths varying from 20 fathoms in the middle to 3 and 4 fathoms close inshore. The bottom is sand. The best anchorage is in the southern part of the port in a position west of the small peninsula that extends northward from the southern shore.

Tides and currents.—The tidal range is about 2 feet. There are no currents.

5-119 Port Larmes (*plan on H. O. Chart 4124*) is entered 4 miles northwestward of Port Scroponeri, and the intervening irregular coast is steep-to except for a 2-fathom shoal extending 275 yards northward from a position on the coast at 1,600 yards west-northwestward of Cape Gatza. Extending 1 mile westward and then 1 mile southwestward, the port decreases in width from 1 mile in its entrance to several hundred yards at its head, where discharges a stream. The depths decrease gradually from 20 fathoms in the entrance to 4 fathoms or less at the head, and the southwestern arm is shallow close inshore along the western side but deeper water prevails close to the ore-loading pier. About 400 yards off the northwestern shore of the outer part of the port is Ayios Nikolaos (St. Georgio), a small rocky islet, 20 feet high, fringed by rocks and shallow depths. On the eastern side of the southwestern arm is a mining establishment with the above-mentioned ore-loading pier. **Mooring buoys** are located off the pier.

Landmarks.—The ore-loading pier and the islet of Ayios Nikolaos are conspicuous.

5-120 Anchorages.—The anchorage is in the middle of the southwestern arm in depths of 5 to 10 fathoms, mud, due east of the village. Vessels have least shelter from westerly and northwesterly winds. Vessels can anchor also in deeper water, 15-20 fathoms, between Cape Stavro to the southeast and the islet of Ayios Nikolaos to the northwest.

Light.—A light is shown from a point about $1\frac{1}{4}$ mile westward of the ore-loading pier.

Tides.—The tidal range varies between 1 and $2\frac{1}{2}$ feet.

5-121 Larmes (Larimna), a village of about 700 inhabitants, extends along the western shore of Port Larmes. The village has a customhouse, a post office, and a telephone office. The only communication by sea is by means of motor boats.

Piers.—The ore-loading cantilever pier at the mining establishment has a length of 330 feet and a depth of 38 feet at its head. Vessels can work moored to the buoys off this pier all the year round without being interrupted by the weather.

5-122 Coast.—Cape Larmes is located $2\frac{1}{2}$ miles northeastward of Port Larmes. Beyond this cape the coast curves gradually northwestward and trends in this direction for 8 miles to Cape Theologos. Depths of less than 5 fathoms extend offshore only a short distance, and only in a small bay about midway between these capes do they extend offshore to any considerable distance.

A light is shown on Stalamato Point, located about $2\frac{1}{2}$ miles north-northwestward of Cape Larmes.

Cape Kerata, on which are the conspicuous ruins of an ancient tower, is located $1\frac{3}{4}$ miles westward of Cape Theologos. Between these two capes rises Mt. Theologos, 705 feet high, covered with trees and shrubs. Depths of $2\frac{1}{4}$ fathoms extend 500 yards northward from Cape Kerata, but elsewhere between the two capes the depths are great close to the shore.

5-123 Atalante (Talanta) Bay (Kolpos Atalandis) (middle, $38^{\circ}40'$ N., $25^{\circ}08'$ E., H. O. Chart 4124) is the largest bay on the

southwestern side of Atalante Channel. Entered between Cape Kerata and Cape Arkitsa, 8 miles northwestward, the bay recedes about 3 miles in a southwesterly direction and has in it two islands, which form secondary bays and anchorages. The bay has general depths under 20 fathoms, and shoal depths are found at relatively short distances from the shore.

The entire eastern side of Atalante Bay is indented by a smaller bay, Kolpos Theologos, that recedes $1\frac{1}{2}$ miles in an easterly direction. The general depths are from 10 to 7 fathoms, and depths of less than 5 fathoms extend offshore 400 yards from the northern and eastern shores and 200 yards from the southern shore. At the head of this bay are the ruins of the ancient city of Halae, and southward of the ruins are the houses of the village of Ayois Ioannis Theologos. An open valley lies behind this village which has a beach and 5 small piers. North of the beach the land rises more gradually than southwestward of the beach where the rocky shore rises into steep, wooded hills.

The small village of Roidhitsa is located at the small inlet indenting the southern shore of Kolpos Theologos. At the eastern entrance point of this inlet is an ore-loading pier with a length of 238 feet, and a depth of 28 feet at its head. Close northeastward of this pier is a much smaller pier with a depth of 8 feet at its head. A mooring buoy is located seaward of these two piers.

5-124 Gaidaro Island (Gaidhouronisi) lies close off the western shore of the head of Atalante Bay, to which it is joined by shallows. On the southeastern side of Gaidaro Island is a pier used for loading ore. This pier has a length of 350 feet and a depth of 32 feet at its head. Two mooring buoys are moored off the pier.

Between the southeastern side of the island and the southern shore of Atalante Bay is Port Armyro (Ormos Armirou), extending $1\frac{3}{4}$ miles in a southwesterly direction and having an average width of one-half of a mile. The outer half of the port has depths of 7 to 5 fathoms in a small area along its axis. To enter this port, vessels must pass 200 yards from the northeastern point of Gaidaro Island to avoid a dangerous submerged rock that lies in the middle of the entrance. At the head of the port are some water mills. On the mainland westward of Gaidaro Island are the village of Keparissi (Kiparissi) and the ruins of the ancient city of Opos.

Mt. Khlomo (Khlomon), located 5 miles west-southwestward of the head of Port Armyro, rises to a height of 3,520 feet. At the foot of this mountain toward the north is the town of Atalante (Atalandi).

5-125 Atalante (Atalandi) Island, located 1 mile northward of Gaidaro Island, extends the same distance in a north and south direction and attains a height of 410 feet. Shoal depths extend 200 yards from the northern, eastern, and southern sides of the island. A small rocky islet lies 400 yards westward of the northern point, and a similar islet lies close off the middle part of the western side of the island. The distance between the island and the mainland to the west becomes less toward the south, and only a narrow channel with depths of 7 to 5 fathoms separates the southwestern point of the island from the mainland. On the mainland abreast the island is the Skala of Atalante, from which depths of less than 5 fathoms extend offshore as far as one-half of a mile.

Point Livanates, the inner northwest limit of Atalante Bay, is located $2\frac{1}{4}$ miles north-northwestward of Atalante Island. Rocks and then depths of less than 5 fathoms ex-

tend 600 yards from the point. At the foot of a hill inland of the point is the village of Livanates (Livantais), and three-fourths of a mile northward of the point is the small village of St. Nikolo (Ayios Nikolaos). Between Point Livanates and Cape Arkitsa, 3 miles north-northwestward, rocks and shallows extend offshore a considerable distance, the 5-fathom curve being about 600 yards off the coast.

5-126 Lights.—A light is shown on Ayios Nikolaos, the small rocky islet 400 yards westward of the northern point of Atalante Island.

A light is shown near the quay at Skala of Atalante.

5-127 Anchorages.—The regular anchorage at Atalante Bay is in the area of 9 to 5 fathoms between Atalante Island and the mainland to the west. The best berth is 600 yards west-northwestward of the small rocky islet lying close off the western side of the island, but vessels are cautioned that between this berth and the islet lies a $4\frac{1}{2}$ -fathom rocky patch. Vessels at this anchorage are sheltered from all weather conditions, as even strong northerly winds do not blow home.

Safe anchorage in all weather conditions is available 375 yards off the middle of the southern side of Atalante Island in a depth of 9 fathoms, sand.

The bay indenting the eastern side of Atalante Bay affords anchorage, but here vessels are not sheltered against northwesterly winds.

5-128 Pilotage is compulsory for Atalante Bay. Cape Knemis is the northern limit, and Cape Stavros is the southern limit of pilotage district of Atalante Bay.

5-129 Settlements.—Skala of Atalante (Atalandi Skala), a very small settlement, is the commercial harbor for the town of Atalante, located inland at a

distance of $3\frac{1}{4}$ miles. The intervening cultivated land produces numerous farm products. Atalante, as well as the town of Livanates, has customhouse, postal, and telegraphic facilities. Small steamers make regular calls at the commercial harbor. A pier is located here with a length of 531 feet; depths alongside are shallow.

5-130 Cape Arkitsa ($38^{\circ}45' N.$, $23^{\circ}02' E.$, *H. O. Chart 4127*), the outer northwest limit of Atalante Bay, is a low sandy promontory extending in a northerly direction. About 4 miles southwestward of the cape is the summit of Xerovouni, 2,340 feet high. Arkitsa, a small village of 400 inhabitants, is built a short distance southward of the cape.

A light is exhibited from a round masonry tower and dwelling, the whole 49 feet high, on Cape Arkitsa.

Cape Kalamos, low and sandy, is located $6\frac{1}{2}$ miles west-northwestward of Cape Arkitsa. The low and sandy coast between these two capes recedes slightly to the south and is backed by hills, high for the most part. Depths of less than 5 fathoms extend offshore as far as one-fourth of a mile. The village of Longos is located three-fourths of a mile inland of Cape Kalamos.

5-131 St. Konstantinos (Ayios Konstandinos) Bay, having a width of $3\frac{1}{2}$ miles between Cape Kalamos on the east and Cape Knemis on the west, recedes $1\frac{3}{4}$ miles in a southerly direction. The bay has general depths of 30 to 15 fathoms, but considerably lesser depths extend 200 yards from the eastern shore and 400 yards from the western shore.

A light is shown on the head of a small pier in the southern part of the bay.

5-132 St. Konstantinos (Ayios Konstandinos), a village of about 700 inhabitants, is located on the western side of the head of the bay. Large quantities of olives, as well as other agricultural crops and cattle, are raised in the vicinity of this village. A jetty extends 25 yards in a southeasterly direction and has a depth of $2\frac{1}{4}$ fathoms at its head; farther southward are several smaller wharves with shallow depths around them. The village has customs, postal, and telegraphic facilities.

5-133 Cape Knemis (Knimis), the western entrance point of St. Konstantinos Bay, forms the southern side of Knemis Channel (sec. 5-114), the main entrance to Atalante

Channel from the north. This low and cultivated point has depths of $2\frac{3}{4}$ fathoms extending 80 yards northward from it.

A light is exhibited from a white iron tower with a red band standing on the extremity of Cape Knemis.

5-134 MALIAKOS GULF (*H. O. Chart 4127*), which indents the mainland of Greece, is located westward of the northern end of Euboea Island. The limits of this gulf are not clearly defined; according to the widest acceptance, its southeast limit is Cape Knemis, and its northeast limit is Cape Tapia. The gulf proper, which is also called Zeiton Gulf, is considered to be the inner part of the whole area and extends 8 miles westward from its entrance, having a width of $1\frac{1}{2}$ miles between Cape Khiliomili on the south and Cape Karavophanaro on the north. Inside this entrance, which has depths of more than 11 fathoms for 1 mile of its width, the gulf widens out to 5 miles at its middle part but has depths of 5 to 15 fathoms for only $2\frac{3}{4}$ miles of this width. The Sperkheios (Sperkios) River, which flows through a large extent of swampy ground at the bases of Mt. Souvala (4,140 feet) and Mt. Alaphi (Elafi) (3,560 feet), discharges along the irregular southern shore and causes shallow water to extend a considerable distance from this shore, as well as the head of the gulf. When navigating in Maliakos Gulf, vessels should take soundings and not depend on the charted depths.

5-135 SOUTHERN SIDE OF MALIAKOS GULF—Coast—Danger.—Westward of Cape Knemis the coast of the mainland recedes slightly southward to form a bay. Kammena Vourla, a resort for baths, is located at the head of this bay about $2\frac{1}{2}$ miles west-southwestward of Cape Knemis. A conspicuous white hotel is located here. A rocky $2\frac{3}{4}$ -fathom patch lies $1\frac{1}{4}$ miles westward of Cape Knemis and 400 yards off the shore, with which it is connected by depths slightly greater than those on it. Between Kammena Vourla and Cape Khiliomili, $5\frac{1}{2}$

miles northwestward, the coast has depths of less than 5 fathoms extending offshore as far as 800 yards, but the depths off Kammena Vourla are great. Inland of this last-mentioned part of the coast are several villages.

Cape Khiliomili, the southern entrance point of the gulf proper, is the steep-to extremity of a low tongue of land extending northward.

A light is exhibited from a cylindrical iron tower, 26 feet high, standing 100 yards within Cape Khiliomili. The keeper's dwelling is close westward of the tower.

A submarine pipeline extends across the entrance of Maliakos Gulf, from Cape Khiliomili northeastward to the opposite shore. Anchorage is prohibited within 600 yards of this pipeline.

5-136 Coast.—Between Cape Khiliomili and the head of the gulf, 8 miles westward, the southern shore is indented by several shallow bights that recede as far as 1 mile. At the head of the first bight westward of the cape is Molos Pier, which is about 90 feet long with very shallow depths off its head. The pier was reported unusable (1954) except for small boats. A highway leads about $1\frac{1}{4}$ miles southward from it to the town of Molos (Molo), where customs, postal, and telephone facilities are available. The second bight westward of the cape is very shallow and has at its head the small settlement of St. Trias (Ayias Trias), which is not far from the Pass of Thermopylae. Considerable shoaling was reported in 1938 to have taken place off the mouth of the Sperkheios River, which discharges into the gulf westward of the last-mentioned bight.

5-137 NORTHERN SIDE OF MALIAKOS GULF.—Cape Tapia ($38^{\circ}54' N.$, $22^{\circ}51' E.$, *H. O. Chart 4127*) is located $1\frac{1}{2}$ miles northward of Cape Vasilinas of Euboea Island, and the two form the southwestern entrance to Oreos Channel. A short distance northwestward of Cape Tapia, which is steep-to, rises the hill of Tapia, 643 feet high.

5-138 Coast.—From Cape Tapia the northern coast of the outer part of Maliakos Gulf trends $4\frac{1}{2}$ miles west-southwestward to Cape Drepanon. At a short distance within this low and sandy stretch of the coast, indented by two small deep bays, is located the village of Rakhes. The small settlement of Akhladion (Akhladhi), located on the shore of the eastern bay, and the small settlement of Paralia, located on the shore of the western bay, serve as commercial harbors for the village.

Cape Drepanon (Dhrepanon), extending one-fourth of a mile in a south-southeasterly direction from the mainland, is low, narrow, and sandy. Depths of more than 5 fathoms are found close off this cape. The land in this vicinity is cultivated, and on the coast three-fourths of a mile westward of the cape is the small village of Kouvela.

A light is exhibited from a white iron obelisk, 16 feet high, located 100 yards within the extremity of Cape Drepanon.

5-139 Ekhinos Bay (Ormos Ekhinou), entered 2 miles westward of Cape Drepanon, is 1 mile wide in its entrance and recedes two-thirds of a mile in a northerly direction. Affording good anchorage, the bay has depths of 8 to 5 fathoms, the latter figure being one-fourth of a mile off the head. On an elevation northeastward of the bay is the village of Ekhinos (Akhinos), and at the head of the bay is the small settlement of Karavomulos.

A small petroleum transfer facility is maintained in the vicinity of the submerged pipeline (sec. 5-135). Pilotage is compulsory and can be arranged for on call signals SVA, Athens. The pilot boards inbound vessels in the vicinity of Cape Kavulia (sec. 6-77). A vessel can enter or depart at any time but mooring is accomplished only during daylight hours. A tug is available and assists in mooring. The controlling depths are as follows: Entrance, 13 fathoms; Channel, 6 fathoms; Anchorage, 10 fathoms; and Berth, 6 fathoms. The longest vessel that can use the berth was reported (1960) to be 550 feet. Fresh vegetables can be obtained and a doctor is in attendance.

Cape Karavophanaro (Karavofanaro), the western entrance point of Ekhinos Bay, is also the northern entrance point to Maliakos Gulf proper. Toward the interior of this low cape is the small settlement of Magklavas (Manglavas). Between the cape and the shallows fronting Port Styliis, 3 miles northwestward, the coast has depths of less than 5 fathoms extending offshore as far as 400 yards.

5-140 Port Styliis (Stillis) ($38^{\circ}55'N.$, $22^{\circ}37'E.$, *plan on H.O. Chart 4127*), a small dredged harbor, is located within the shallows extending 1 mile from the town of Styliis, located at the middle of the northern side of Maliakos Gulf. The depths seaward of these shallows increase rapidly. The harbor with a length of 400 yards in a north and south direction and a width of 300 yards is located mainly eastward of a pier that extends 200 yards southward from the quayed shore. The depths are 14 feet, but on the western side of the pier they are only 9 feet in a small area. Extending three-fourths of a mile in a northwesterly and southeasterly direction through the shallows, the narrow entrance channel has a width of 150 feet with a least depth of 15 feet (1960). Kalogeros (Kaloyiros), a low islet, is located on the southwestern side of the channel near its inner end.

A light is shown from the pier at Port Styliis.

5-141 Light buoys.—Two light buoys, a black can buoy with a flashing green light and a red can buoy with a flashing red light, mark respectively the eastern and the western side of the seaward end of the entrance channel.

Two iron towers with masts about 65 yards apart stand near the inner end of the entrance channel on each side and are lighted.

Landmarks.—Conspicuous marks are the large building at the base of the pier and the church of Ayios Athanasios in the middle of the town.

5-142.—Anchorage can be taken in 7 fathoms about $\frac{1}{2}$ mile southeastward of the seaward end of the entrance channel.

5-143 Directions.—The outer and the greater part of the entrance channel is in a straight line. The axis for those entering is determined by the light on the pier, which must be kept midway between the light towers.

5-144 STYLIS (STILIS) ($38^{\circ}55' N.$, $22^{\circ}37' E.$, *plan on H.O. Chart 4127*), the commercial harbor for the inland city of Lamia (Zeitun), has a population of about 3,000. The principal exports are olives, vegetables, and cheese. Customs, postal, and telegraphic facilities are available. The town is connected to the Greek railroad system, and small steamers call.

Berths.—A pier 525 feet long has depths of 16 feet on its eastern side and along its head. The quay eastward of the pier is 1,115 feet in length. Vessels berth stern-to.

Meteorological table.—See appendix II.

5-145 The anchorage of St. Marina (Ayia Marina), an open roadstead, is off the village of the same name located on the coast $1\frac{1}{2}$ miles southwestward of Port Styliis. As Port Styliis cannot accommodate large vessels, this anchorage forms the principal place for the export of the products of the surrounding country. Anchorage is available about one-half of a mile southeastward of the pier in a depth of 10 fathoms, mud.

5-146 St. Marina (Ayia Marina), consisting of about 50 houses and a railroad station, has a population of about 450.

The main pier, used for the loading of chrome ore and bauxite, has a length of 445 feet, and a depth of 18 to 20 feet at its head. The pier is equipped with tracks and two loading chutes.

5-147 OREOS CHANNEL (DHIAVLOS OREON) (*western entrance*, $38^{\circ}53' N.$, $22^{\circ}51' E.$, *H. O. Chart 4127*), which separates

the northwestern coast of Euboea Island from the mainland of Greece, connects Atalante Channel and Maliakos Gulf with the Gulf of Volos, and Trikiri Channel, extending eastward from Oreos Channel, connects all of them with the Aegean Sea. Having a total length of 15 miles in a general east-northeasterly and west-southwesterly direction, Oreos Channel has a minimum width of $1\frac{1}{2}$ miles at its southwestern entrance and a maximum width of 4 miles at a short distance within its northeastern entrance. The depths are great, and only along the southeastern shore do shoal depths extend offshore as far as 400 yards. Besides two islets, there is one off-lying danger, marked by a light. The navigation of Oreos Channel does not present any difficulties.

Currents.—The tidal currents in Oreos Channel have an average velocity of $1\frac{1}{2}$ knots. From observations made at Glypha Bay for a period of 8 days, the current was observed to set northeastward 3 hours after, and southwestward 3 hours before, the time of high water in Knemis Channel.

5-148 NORTHWESTERN SIDE OF OREOS CHANNEL.—Gardikios Bay (Ormos Gardhikiou), located on this side of the channel immediately within the southwestern entrance, is about $2\frac{1}{2}$ miles wide in its entrance between Cape Tapia on the southwest and the spur of an elevated ridge on the northeast, and recedes $1\frac{1}{2}$ miles in a northerly direction. Good anchorage may be obtained in depths of 11 to 19 fathoms, good holding ground, at least 500 yards off the head of the bay, where is located the settle-

ment of St. Konstantinos (Ayios Konstantinos). A stranded wreck is located about $\frac{3}{4}$ mile southwestward of St. Konstantinos. Eastward of the settlement are the mouths of two streams, and shallows caused by sediment from these streams extend offshore as far as 200 yards along this part of the shore. The water is deep close off these shallows.

The hills at the head of Gardikios Bay attain a height of 535 feet, and $1\frac{1}{2}$ miles inland on the foothills of Mt. Oxia is the village of Gardiki (Pelasyia). The village has customs, postal, and telegraphic facilities.

St. Nikolaos (Ayios Nikolaos) Islet, a small, low, rocky islet covered with shrubs, is located 4 miles eastward of the head of Gardikios Bay and one-fourth of a mile off the mainland, from which it is separated by depths of 17 fathoms. The southern side of the island is steep-to.

5-149 Vathykelos Bay (Ormos Vathi), a small, almost landlocked bay entered one-fourth of a mile northward of St. Nikolaos Islet, trends first one-half of a mile northwestward and then northward for a lesser distance. Along the precipitous western shore rise hills, 820 to 1,001 feet high, and the low eastern shore projects slightly westward and has rocks under water extending a short distance from it. The outer part of the bay has depths of 30 to 19 fathoms, while the inner part has depths of 13 to 8 fathoms. About $1\frac{1}{2}$ miles northwestward of the bay is Vathikoila (Souvala), a small village of 200 inhabitants. Two wrecks lie in the northern part of Vathykelos Bay.

5-150 Glypha Bay (Ormos Glifas), located immediately eastward of Vathykelos Bay, is 2 miles wide in its entrance and recedes 1,800 yards in a northerly direction. Very shallow water extends 200 yards from the northwestern shore and that at the head of the bay, where is located the village of Glypha (Glifa). Vessels are able to anchor off the head of the bay; a good berth is in a depth of 13 fathoms at 600 yards east-southeastward of the village and 200 yards off the precipitous, steep-to shore.

Cape St. Sostes (Ayios Sostis) (38°57' N., 23°00' E., H. O. Chart 4127), the eastern limit of Glypha Bay, has white cliffs on its eastern side. About one-half of a mile within this cape rises the hill of St. Sostes (Ayios Sostis), 413 feet high. The extremity of the cape is steep-to, but the eastern side and the coast as far north as 2 miles have shallow depths extending offshore about 300 yards.

A submarine cable extends southeastward from Cape St. Sostes to the opposite shore. Anchoring and fishing are prohibited within 600 feet of the cable.

5-151 Coast.—From Cape St. Sostes the coast trends first $4\frac{1}{2}$ miles north-northeastward, thence $1\frac{1}{2}$ miles eastward to a small precipitous promontory projecting 400 yards southward, and finally again $1\frac{1}{2}$ miles north-northeastward to Cape Stavros (sec. 6-78), the northwestern entrance point of the northeastern entrance to Oreos Channel. About midway on the first-mentioned stretch of the coast rises Mt. Tragovouni, 2,093 feet high, and the small village of St. Demetrios (Ayios Dhimitrios) is located farther northward, where the coast turns eastward. Between this village and the small precipitous promontory farther eastward the coast has depths of less than 3 fathoms extending offshore for a distance of 200 yards. Between

the small promontory and Cape Stavros the coast remains high and precipitous, and has great depths near it.

5-152 Argyronesos (Aryironisos), an island extending three-fourths of a mile in an east and west direction, lies $1\frac{1}{2}$ miles southward of Cape Stavros and is separated from the above-mentioned small precipitous promontory of the mainland to the northwestward by a channel with a width of 650 yards. In the middle of this channel lies a small rocky islet, connected by foul ground with the northwestern point of the island. The fairway northwestward of this small rocky islet is only 300 yards wide but deep; small local steamers sometimes use it by day. Another small rocky islet lies close off the southernmost point of Argyronesos, with which is connected by shallow water. A 2-fathom reef lies about $\frac{1}{2}$ mile southwestward of Argyronesos Light. Elsewhere the island has depths of 27 fathoms at a distance of 200 yards off it, and the small bay indenting its northern side is too deep for anchoring.

A light is shown from the eastern extremity of Argyronesos.

Two foul grounds, about 100 yards apart, lie about $\frac{1}{2}$ mile westward of Argyronesos Light.

5-153 SOUTHEASTERN SIDE OF OREOS CHANNEL—Coast.—From Cape Vasilinas (sec. 5-110), the southern entrance point of the southwestern entrance to Oreos Channel, the coast of Euboea Island trends $10\frac{1}{2}$ miles east-northeastward to Oreos Bay. Several small bays, having great depths and unsuitable for anchorage for the most part, indent the coast; one of these located 4 miles east-northeastward of Cape Vasilinas is named Krypholimani (Krifolimani) Bay. Along this stretch of the coast deep water is close offshore in most places, and only the point 8 miles east-northeastward of Cape

Vasillas has shoal depths with rocks extending offshore as far as 400 yards. These shoal depths also extend the same distance from both sides of the point.

5-154 Oreos Bay (Ormos Oreon) ($38^{\circ}57'$ N., $23^{\circ}05'$ E., *H. O. Chart 4127*), entered between Cape Nesiotisa (Nisiotissa) on the southwest and Cape Garas (Gara) on the northeast, is 3 miles wide between these two capes and recedes $1\frac{1}{4}$ miles in a southeasterly direction. The bay has depths of 19 to 8 fathoms, and shallow depths extend offshore 300 yards from the eastern shore of the bay. About 600 yards eastward of Cape Nesiotisa and close off the southern shore, which has deep water near it, lie two small, rocky islets, the southeastern being named Monastery.

Oreos Shoal, consisting of two rocks, close together, with depths of less than 6 feet over them, lies three-fourths of a mile northward of Cape Nesiotisa. This shoal, located in the western approach to Oreos Bay, is the only off-lying danger in Oreos Channel.

Lights.—A light is shown in the center of Oreos Shoal.

A light is shown from the northern pier at Skala Oreon.

5-155 Anchorage.—The entire inner part of Oreos Bay affords good anchorage. The best berth for a large vessel is in a depth of

16 fathoms about one-half of a mile westward of Skala Oreon, while a small vessel can anchor in a depth of 10 fathoms at a distance of only 400 yards off this settlement. In winter the bay is exposed to west-northwesterly winds.

5-156 Skala Oreon, located at the southern end of the eastern side of Oreos Bay, is the commercial harbor for the village of Oreos (Oreoi), located one-half of a mile eastward of it. Custom, postal, and telegraphic facilities are available. Coastal steamers call irregularly.

Xerokhorion (Istiaia), located on a fertile plain $2\frac{3}{4}$ miles eastward of the skala, has a population of about 3,300.

Wharves.—The northern pier has a length of about 300 feet and a depth of 19 feet at its head.

The southern or main pier has a length of 97 feet and a depth of 11 feet off its T-head.

5-157 Coast.—From Cape Garas, the northeast limit of Oreos Bay, the low coast of Euboea Island trends $2\frac{1}{2}$ miles north-eastward to Cape Kephala (Kefalas) (sec. 6-74), the western limit of the southern side of Trikiri Channel. Along this part of the coast depths of less than 3 fathoms extend offshore as far as 400 yards. About 1 mile southwestward of Cape Kephala is the very small settlement of Kanatadika (Kanatadhika). Immediately within Cape Garas and Cape Kephala are, respectively, Mikro Dhi-vari and Megalo Dhi-vari, both lagoons.

CHAPTER 6

GREECE—NORTHEASTERN SIDE OF EUBOEIA ISLAND—NORTHERN SPORADES— GULF OF VOLOS

6-1 CAPE MANDILI TO CAPE DORO.

—Between Cape Mandili to the south and Cape Doro to the north, a distance of about $13\frac{1}{2}$ miles, the eastern coast of Euboea Island forms the western shore of Doro Channel (sec. 4-270). Near this rather high and precipitous coast are considerable depths. Being sparsely inhabited, the coast presents little of importance to navigation.

6-2 Cape Mandili (Mandyli) (Mandhili) ($37^{\circ}57'$ N., $24^{\circ}31'$ E., *H. O. Chart 4121*), the southeastern extremity of Euboea Island, is high and precipitous. Mt. Okhi (Okhi Oros), 4,583 feet high, rises 7 miles northward of the cape, and between them are lesser heights.

Mandili (Mandyli) Island (Mandhilonisi), 286 feet high and three-fourths of a mile long in a north-northwesterly and south-southeasterly direction, lies about 650 yards southward of Cape Mandili, from which it is separated by a channel with considerable depths. Close to the island lie rocks, which extend farther off its northern extremity than anywhere else.

The coast westward of Cape Mandili is described in section 5-26.

Mandili Island Light, located near the southern extremity of the island, is exhibited from a cylindrical tower with a dwelling.

6-3 Coast.—Kastri Bay, a small bay indenting the eastern coast of Euboea Island in a position about 2 miles northeastward of Cape Mandili, recedes about one-half of a mile in a northwesterly direction and has a

least depth of 3 fathoms at its head. The only danger is the shoal depths fringing the northeastern entrance point, and a rock above water lies 200 yards seaward of this same point. This bay affords good shelter against northerly winds, which blow in Doro Channel. Drinking water is available.

Immediately northward of Kastri Bay is another small bay, open to the southeast. In the southern part are a $1\frac{1}{4}$ -fathom and a $1\frac{3}{4}$ -fathom patch. This bay is unsuitable for anchorage or refuge. About one-fourth of a mile northward of this bay is a smaller bay open to the east-southeastward and having considerable depths. It is suitable for small boats as a refuge against northerly winds.

Platanista (Platanistos) Bay, entered 1 mile north-northeastward of the last-mentioned small bay, is open to the eastward and unsuitable for anchorage during northerly winds. It is the harbor for the inland village of Platanista (Platanistos), having about 1,200 inhabitants. A stranded wreck lies about $\frac{1}{4}$ mile southward of Platanista Bay. On Cape Dimi (Thimi), 1 mile northward of the bay, is a small settlement of 100 inhabitants. In the interior between Cape Dimi and Cape Doro is the village of Amigdhalla, with other surrounding settlements.

Cape Doro (Kafirevs), the northern limit of the eastern coast of Euboea Island and the northwestern entrance point of Doro Channel, is a high bold headland. The little rocky islet of Doro lies about 650 yards eastward of the cape, and the depths in the

passage between them are great, especially along the axis. About 200 yards off the northeastern point of the islet is a 3-fathom patch.

Cape Doro Light, located on Doro Islet, is exhibited from a white iron tower, 10 feet high, with a concrete base.

6-4 CAPE DORO TO CAPE KUMI (*H. O. Chart 3966*).—Between Cape Doro and Cape Kumi, $36\frac{1}{2}$ miles northwestward, the southern part of the northeastern coast of Euboea Island trends first in a westerly direction and then in a northerly direction to form a large bight. Consisting principally of high precipitous rocks, the coast is indented by several small bays of little importance.

Current.—When a vessel is navigating along the northeastern coast of Euboea Island, great attention should be given to the probable set of the current, especially during northeasterly winds. The almost unbroken line of precipitous coast in that part of the great bight between Cape Octonia and Cape Doro is exposed to the full force of strong northeasterly winds, which send in a heavy sea and also accelerate the southwesterly current from the Dardanelles.

Between Cape Octonia and the middle of the above-mentioned bight the current sets southward with a rate not exceeding $1\frac{1}{4}$ knots. This southerly current increases its rate to 2 knots toward Cape Doro, where it divides into a southerly and an easterly branch. The current flows past Cape Doro at a rate of 3 knots, and the rate even becomes greater in Doro Channel.

6-5 The coast (*H. O. Chart 4121*) extending westward from Cape Doro has considerable depths close off it. Cape Kidonia (Kidhonia), $6\frac{1}{2}$ miles westward of Cape Doro, has on its eastern side a small bay open to the northeastward. Cape Philagra

(Filagra), $2\frac{3}{4}$ miles west-northwestward of Cape Kidonia, is surmounted by a medieval fort in ruins.

6-6 Cape Kleosi (Letra) ($38^{\circ}10' N.$, $24^{\circ}20' E.$, *H. O. Chart 4123*) is located $3\frac{1}{2}$ miles west-northwestward of Cape Philagra, and the coast between is indented by Philagra (Filagra) Bay. The depths in the bay are great, but rocks under water lie close off its southwestern shore. Being open to northerly winds, the bay is not recommended for anchoring.

From Cape Kleosi the coast trends northwestward, and 4 miles from the cape is indented by Karaledes (Karalidhes) Bay. This small bay, open to the eastward, has rocks above and below water at its head and depths of less than 5 fathoms extending some distance seaward from them. Westward of the southern part of this bay is the small settlement of Karaledes (Karalidhes), and westward of the northern part is the village of Misokhori (Mesokhoria), having about 500 inhabitants. In the vicinity of Misokhori are the smaller settlements of Tsakaioi and Raptaiioi.

Northward from Karaledes Bay the coast is bordered with a considerable number of underwater rocks lying only a short distance offshore. Mourteria Bay, located $5\frac{1}{2}$ miles northward of Karaledes Bay, is open to the eastward. The bay has considerable depths, and sunken rocks lie close to its shores.

6-7 Port Petries ($38^{\circ}24' N.$, $24^{\circ}12' E.$, *H. O. Chart 3966*), entered $3\frac{3}{4}$ miles northward of Mourteria Bay, is the northern bight of a bay having a width of 2 miles in a north and south direction and receding $1\frac{1}{4}$ miles in a westerly direction. In the southern part of the bay is a rocky islet. Underwater rocks lie off the western part of the islet, which is separated from the mainland by a channel having a width of 800 yards and a depth of 9 fathoms along its axis. Along

the shore of Port Petries is the settlement of Paralia Petrion, with 100 inhabitants. Farther inland is the village of Petries, connected by a secondary highway with Port Aliveri, located on the opposite side of Euboea Island.

Small vessels can obtain anchorage in depths of 11 to 10 fathoms, firm sand, 400 yards off the shore of Port Petries. Although this bight is open to the southeast, the swell caused by southerly winds in the winter does not penetrate into the inner part of the bight.

A light is exhibited from an iron column, 19 feet high, with a hut on the promontory forming the northeastern side of Port Petries.

In October 1956, a light was shown on the mast of a sunken wreck located about 800 yards west-northwestward of the above promontory.

6-8 Cape Octonia (Oktonia) ($38^{\circ}32' N.$, $24^{\circ}14' E.$, *H. O. Chart 3966*) is located 8 miles northward of Port Petries, and the intervening coast, about 3 miles northward of Port Petries, is indented by Kalamo Bay. About 1 mile northward of the head of Kalamo Bay, where the depths are less than 3 fathoms, is the village of Aklederi (Akh-ladheri), with 500 inhabitants. About $2\frac{1}{2}$ miles westward of the cape rises Mount Octonia (Oktonia), 2,496 feet high, with the village of Octonia (Oktonia), with 1,250 inhabitants, on its western slope. Two rocky islets surrounded by rocks beneath the surface of the water lie 1,200 yards south-southwestward of Cape Octonia. Vessels navigating along the northeastern side of Euboea Island should give this cape a berth of more than one-half of a mile.

A bank, with a depth of 28 fathoms, lies about 10 miles east-southeastward of Cape Octonia.

6-9 Kumi (Kimi) Bay, limited to the south by Cape Octonia and to the north by Cape Kumi (Kimi), is 8 miles wide between

these points and recedes nearly 3 miles in a westerly direction. Where the shore changes its direction from northwest to north, rises Mount Oxyolithos, an extinct volcano having a sharp peak. Near this mountain is the village of Oxyolithos. Near the northern end of the western shore is Port Kumi. The southwestern shore has depths of 5 fathoms not far offshore, but between Port Kumi and Cape Kumi rocks beneath the surface of the water extend as far as 500 yards offshore. Cape Kumi is precipitous and steep-to.

6-10 Port Kumi (Kimi), a small harbor for sailing vessels and small steamers, is about 500 yards wide and 500 yards long. Two breakwaters form the harbor. The northern one extends first southeastward and then south-southeastward for a total distance of 850 yards, while the southern one extends 375 yards in an easterly direction from the shore. The outer, or eastern, half of the harbor has depths of $4\frac{1}{2}$ fathoms.

A light is shown on the head of each breakwater.

Anchorage.—Large vessels can obtain temporary anchorage in depths of 12 to 10 fathoms about one-half of a mile eastward of Port Kumi.

6-11 Kumi (Kimi), the town about 1 mile inland of the harbor, is built on land about 650 feet above the sea. The inhabitants, who are also good sailors, are engaged in farming and in exporting lignite. Paralia Kimis, the small settlement along the harbor, has a population of 350. Also inland of the western shore of the bay is the village of Anoria (Enoria) (600 inhabitants) and Potamia (350 inhabitants). The harbor office and the customhouse at the harbor have jurisdiction over the entire northeastern coast of Euboea Island and the island of Skyros.

There is a wharf about 200 feet long with a depth alongside of about 16 feet on the inner side of the northern end of the northern breakwater.

Mechanical means are available for loading lignite onto vessels. Provisions, but not water, are procurable. Postal and telegraphic facilities are available. Steamers call, and motorboat service is maintained with the Northern Sporades and with the settlements along the northeastern coast of Euboea Island. There

is a regular automobile schedule across the island to Khalkis, the capital of the island.

6-12 Glaro (Glaros) (Lithari) Islet lies off Kumi Bay in a position about 4 miles south-eastward of Cape Kumi. This rocky islet has depths of less than 5 fathoms extending a short distance from it. This islet constitutes a danger at night because of its low height, and vessels navigating along the northeastern coast of Euboea Island should pass eastward of Prassudo Islet.

Prassudo (Prasoudha) Islet, a rocky islet located $4\frac{1}{2}$ miles eastward of Cape Kumi, attains a height of 138 feet.

Prassudo Islet Light, located on the summit of the islet, is exhibited from a circular masonry tower and dwelling, the whole 57 feet high. A 53-fathom bank lies about 6 miles north-northwestward of the above-mentioned light structure.

Currents.—Northwestward of Prassudo Islet an easterly current with a velocity of 1 knot was observed during strong northerly winds, and about 15 miles east-south-eastward of this same islet a southeasterly current was observed during strong north-westerly winds.

6-13 CAPE KUMI TO CAPE ARTEMISION—Coast and islets.—Between Cape Kumi and Cape Sarakeniko, $22\frac{1}{2}$ miles west-northwestward, the coast of Euboea Island trends first west-northwestward, then westward, and finally west-northwestward. Along this high, precipitous, and steep-to coast lie several islets. A short distance inland of the point where the coast takes a westerly direction is a summit, 2,808 feet high.

Plati (Platia) Islet, rocky and steep-to, lies 1,200 yards northwestward of Cape Kumi and 600 yards offshore. **Kili (Koili) Islet**, also rocky, lies $1\frac{1}{2}$ miles northwestward of Cape Kumi. It is separated from the mainland by a channel with a width of 500 yards and a depth of 5 fathoms. On the

southern side of this channel is a small bay with depths of 10 to 5 feet, where boats and coasters can obtain shelter from northerly winds. Koila, a village of 200 inhabitants, is located at this bay.

Immediately westward of the point where the coast takes a westerly direction is the small bay of Platania, open to the northeast. The depths in this bay are 7 fathoms, and rocks beneath the water lie along the eastern shore. About 1 mile westward of the bay of Platania is another small bay open to the north-northwestward. The depths in the entrance are 90 fathoms, but rocks above and under water lie off its head. About one-half of a mile westward of this small bay is Cape Apthekose (Apothikes), the western side of which is indented by a small bay with shallow water fringing its shores.

6-14 Metokhi Bay, entered westward of Cape Apthekose, does not afford anchorage during northerly winds. At the head of this bay is the settlement of Metokhi, with a small church among its buildings. About 100 yards off the village are depths of $2\frac{3}{4}$ fathoms, increasing to $5\frac{1}{2}$ fathoms about 100 yards farther out.

Kheliatho Islet, rocky and 190 feet high, lies 2 miles westward of the settlement of Metokhi and 650 yards off the mainland, from which it is separated by a channel with depths of 6 fathoms. About 1 mile westward of Kheliatho Islet are the islets of Tria Nisia, eastward of which lies a rock beneath the surface of the water.

6-15 Cape Sarakeniko (Sarakinikon) ($38^{\circ}46'$ N., $23^{\circ}43'$ E., *H. O. Chart 3966*) is located $10\frac{1}{2}$ miles west-northwestward of the islets of Tria Nisia, the intervening coast being without interest, precipitous, and steep-to. Being a narrow promontory, this cape is the northern extension of the high mountain of Yerakovouni in the interior. The eastern side of the cape is

fringed by rocks under water, and the western side is indented by a small bay, open to the northwest and almost entirely occupied by a small rocky islet. The small settlement of Sarakinikon is located at this bay.

Shoal.—A 33-foot shoal, and a pinnacle rock with 7 feet over it and deep water around it, lie about 600 yards offshore and 2 and 1 1/2 miles southeastward, respectively, of Cape Sarakeniko.

6-16 Coast.—Vlakhia Bay, small and open to the north, is entered 2 miles southwestward of Cape Sarakeniko. This bay, the shores of which are fringed by rocks under water, has depths of 5 fathoms in its outer part and 3 fathoms in its inner part. A short distance inland of the head is the village of Vlakhia, with 250 inhabitants.

Pili Bay, open to the north, is entered 5 miles westward of Cape Sarakeniko. Depths of less than 5 fathoms extend nearly one-half of a mile from its head. Pyle (Pili), a village with about 650 inhabitants, is located a short distance inland of the head. On the southeastern side of the bay is a wooden wharf with a length of 100 feet. Manganese ore is loaded from this wharf onto lighters and transported to vessels putting in here for this purpose.

Large vessels can anchor in the middle of Pili Bay in depths of 12 to 10 fathoms. Farther southward is a mooring buoy, to which a vessel can tie up its stern. Vessels putting into this bay should avoid the eastern shore, along which lie rocks beneath the surface of the water.

Port Atalando (Atalandos Ormos), a narrow inlet receding about 1 mile southward, is separated from Pili Bay by Cape Dagri (Dhagri), which is one-half of a mile wide and 1,150 feet high. The outer part of the inlet has depths of 7 fathoms, and the inner part has depths of 3 3/4 fathoms.

6-17 Port Mantudion (Mandoudhi), entered 2 3/4 miles northwestward of Port Atalando, has in its northern part several islets surrounded by rocks under water. Southward of the islets the depths are from 25 to 19 feet, and eastward of them are depths of over 7 fathoms. The town of

Mantudion (Mandoudhion), with 1,900 inhabitants, is located 2 miles inland of the port. The town, as well as the port, have postal, custom, telephonic, and telegraphic facilities.

Vessels frequent Port Mantudion to load manganese, ironstone, and whitestone. Lighters are used for the loading of these minerals. A large vessel can moor in the center of the port in a depth of 7 fathoms. The stern is secured to a bollard and an anchor on the shore, and thus a vessel will always remain in depths of 23 feet.

6-18 Port Pelaki (Peleki) (Kymassi) (38°50' N., 23°29' E., *H. O. Chart 4124*) is located 3 miles northwestward of Port Mantudion, the coast between them being high and precipitous and rising to Mt. Gero (Yerovouno), 827 feet high. This small bay indents the coast only slightly and is open to the northeastward. A stream of good water discharges into the head of the bay, and the stream flowing into the northern part of the bay is salty. Between these two streams the shore is low and sandy, and on the higher southeastern shore are the ruins of Cerinthus. Anchorage in depths of 19 to 12 fathoms is available at a distance of 1,200 yards off the shore of this port.

6-19 Cape Agios Vasileos (Ayios Vasileos), extending eastward, is located 3 miles north-northwestward of Port Pelaki, from which it is separated by a low and well-cultivated coast. From a distance this steep-to cape has the appearance of an island, because it is a mountainous mass connected to the mainland of Euboea Island by a low and narrow neck. The Hellenic fort charted on the cape is not visible from seaward, and 400 yards westward of the extremity of the cape stands a white house. Anchorage in a depth of 12 fathoms is possible at 200 yards off the southern side of the cape where it is indented by a small cove open to the southeastward. From this berth the eastern limit of the cape bears 042°, distant one-half of a mile. Abreast this anchorage, where a sandy beach joins the cliffs, is a white house, and 200 yards farther southward are some ruined huts.

Akladi (Akhladhi), an inland village of 500 inhabitants, is located west-northwestward of Cape Agios Vasileos, and another inland village located southwestward of the cape is Agia Anna (Ayia Anna), with 1,400 inhabitants. The latter village, a manufacturing center, has a post office, a telegraph office, and a regular automobile schedule with the city of Khalkis.

Lephko Islets (Levkonisia), together with rocks above and below water, extend as far as $1\frac{1}{2}$ miles from the coast in a position $4\frac{1}{2}$ miles northward of Cape Agios Vasileos. The highest islet toward the coast attains a height of 130 feet, and between it and the rocks along the coast is a passage with a least charted depth of 8 fathoms; however, passage should not be attempted except with local knowledge. The whole group constitutes a danger and should be given a berth of 2 miles. A light is shown on the northeastern islet of the group.

A 14-fathom patch was reported (1948) to lie about $5\frac{1}{2}$ miles northeastward of the Lephko Islets.

6-20 Coast.—Port Lutro (Loutro), a small cove open to the southeast, indents the coast $1\frac{1}{2}$ miles southward of Lephko Islets. In the middle of its entrance lies a rock under water. Occupying an inland position southwestward of this cove is the village of Kotsikia, which has 300 inhabitants.

Vasiliko Bay, about 4 miles wide at its entrance and open to the east-northeast, indents the coast immediately northward of the Lephko Islets. The southern shore is irregular and has underwater rocks, and depths of less than 3 fathoms extend as far as 500 yards off the low western shore. The northern limit of the bay is a bulky and precipitous promontory, about 3 miles inland

of which the land attains a height of 1,320 feet in Mt. Psara. Located inland of the bay is the village of Vasilikos (400 inhabitants).

Myrmikonisos (Mirmingonisia) (Mirmingia) Rocks, lying about 650 yards eastward of the northern limit of Vasiliko Bay, from which they are separated by a deep passage, extend 500 yards in an easterly and westerly direction. One of the rocks is above water.

6-21 Cape Artemision ($39^{\circ}02' N.$, $23^{\circ}19' E.$, *H. O. Chart 4124*), located $3\frac{1}{2}$ miles northwestward of the northern limit of Vasiliko Bay, is the northern extremity of Euboea Island, as well as the southern entrance point of the eastern end of Trikiri Channel (sec. 6-73). Rocks under water lie as far as 400 yards off the coast between Vasiliko Bay and the cape.

Pondiko Nisi, a steep-to island extending three-fourths of a mile in an east and west direction and attaining a height of 230 feet, lies 1,200 yards northeastward of Cape Artemision, from which it is separated by a deep passage. About one-half of a mile southeastward of Pondiko Nisi lies Praso Nisi, a much smaller and steep-to islet.

Pondiko Nisi Light is exhibited from a white circular masonry tower, 62 feet high, attached to a dwelling.

6-22 NORTHERN SPORADES (VORAI SPORADHES) (SKOPELOS ISLANDS) (*H. O. Chart 4148*)—General remarks.—The Northern Sporades, a chain of islands, extend from the southern end of Magnesian Promontory in an east-northeasterly direction for a distance of 48 miles, and lie in the approach to the Gulf of Saloniki (Thermaikos Kolpos). This chain consists of nine principal islands, named Skiathos, Skopelos,

Khelidromi, Peristeri, Skantzura, Pelago, Iura, Psathura, and Piperi, as well as several islets and rocks. Skyros Island, also one of the Northern Sporades, lies southeastward of the chain.

The islands form an interesting and beautiful group, and their appearance from seaward is most pleasing, particularly Skiathos and Skopelos. The climate is generally agreeable, but the heat is sometimes excessive. Sudden changes in the weather are common, a heavy gale succeeding a calm with but little warning.

6-23 SKYROS (SKIROS) ISLAND (*northern extremity, 38°59' N., 24°29' E., H. O. Chart 4157*), located 19 miles northeastward of Cape Kumi of Euboea Island, is the southeasternmost, largest, and most important of the Northern Sporades. This mountainous island extends 15 miles in a northwesterly and southeasterly direction, has a maximum width of 7 miles in its northwestern part, and attains its greatest height in Mt. Kokhilas (2,670 feet) in the southeastern part. Having an irregular shape, this island has on its southern and western sides several bays, which afford excellent shelter against all weather conditions common to the northern part of the Aegean Sea. Several smaller islands lie off the western coast, and dangers extend eastward and northward from the northern part of the eastern coast.

The climate is healthy. Water is plentiful; rainfall is considerable, October and February being the wettest months. Heavy rains of short duration sometimes fall in the summer, and months without rain are rare.

Agricultural products, small in quantity but excellent in quality, are grown on the level areas, fertile for the most part. Cattle are raised. Lobster fisheries are operated

at Kalamitza Bay. Colored marble of exceptional quality is exported.

The island has a population of 3,179. The greater part of the inhabitants reside at Skyros, the capital, and the remainder dwell in settlements in the interior and along the coast. Steamer communication is maintained with Piraeus, Volos, and the other islands of the Northern Sporades. There is motorboat traffic with Port Kumi, on the northeastern coast of Euboea Island.

Currents.—During light south-southwesterly winds in September 1916, no current was observed between a position 15 miles eastward of Skyros Island and Cape Doro; in October the current there set south-southwestward with a rate of three-fourths of a knot during a fresh northerly breeze. During a gentle north-northwesterly breeze in November the current set south-southeastward with a rate of three-fourths of a knot between a position 15 miles eastward of Skyros Island and northeastward of Andros Island. In October, between Skyros Island and Cape Doro, a southeasterly current with a velocity of 1 knot was observed during a fresh north-northwesterly breeze.

6-24 SOUTHERN SIDE OF SKYROS ISLAND.—Lithari Point (*38°47' N., 24°41' E., H. O. Chart 4157*), the southeastern extremity of Skyros Island, is precipitous and steep-to. A patch of steep-to rocks, one of which shows above water, lies 250 yards southeastward of the point.

Lithari Point Light is exhibited from a square tower, 36 feet high, attached to a dwelling.

6-25 Coast.—From Lithari Point the precipitous and steep-to coast trends $1\frac{1}{2}$ miles west-southwestward to Armena (Armeno) Point. About two-thirds of a mile westward of Armena Point is Xilopara Point, from which underwater rocks extend

southward a short distance. Immediately westward of Xilopara Point is Renes Bay. From its entrance, one-half of a mile wide, this small bay recedes nearly three-fourths of a mile northward and decreases in width. The outer part of the bay has considerable depths, and the inner part has depths of 11 to 5½ fathoms.

6-26 Port Trebuki (Ormos Tris Boukes) (*B. A. Chart 3929*), a deep harbor that indents the southern side of Skyros Island to a distance of 1½ miles in a northerly direction and has a width of 1½ miles, is located 3½ miles westward of Lithari Point. Fronting the harbor are Sarakino Island and Plati Island, which form three entrance channels into the harbor.

Sarakino Island, the eastern one, extends 1½ miles in an east and west direction, is nearly 1 mile wide in its western part, and attains a height of 430 feet. Water of a poor quality may be obtained from a well near a small house that stands westward of the small cove indenting the southern side of Sarakino Island. Plati, the western and smaller island, is 131 feet high. A well lies about ¼ mile north-northwestward of the southeastern extremity of Plati. A hut stands about 350 yards northwestward of the well. The 5-fathom curve lies about 250 yards off the southeastern side of Plati.

Sarakino Strait, the entrance channel northward of Sarakino Island, Piato Channel, between Sarakino Island and Plati Island, and Marmora (Marmara) Channel, westward of Plati Island, are all deep in midchannel. Marmora Channel is the easiest to navigate, especially at night. If using Piato Channel, keep Sarakino Island close aboard, as shoal water extends about 200 yards from the eastern and southeastern sides of Plati Island.

A conspicuous house is located about 700 yards northwestward of Cape Marmora.

Anchorage.—Port Trebuki is considered an excellent place of shelter when vessels bound through the archipelago are caught in a gale. The wind, however, comes down the mountains in heavy gusts; consequently it is advisable to ride with two anchors,

using plenty of chain. The only sandy beach in the harbor is on the eastern side, and here the 5-fathom curve is 200 yards off-shore, the 20-fathom being about 600 yards offshore. The best berth during northerly winds is in a depth of 16 fathoms off this beach. A tank and some ruins stand on a point of the eastern shore, about ½ mile north-eastward of the northern end of Sarakino Island.

6-27 SOUTHWESTERN AND WESTERN SIDES OF SKYROS ISLAND.—**Kalamitza Bay (Ormos Kalamitsas)** (*H. O. Chart 4157*), deep and extensive, is located 3 miles northwestward of Port Trebuki, from which it is separated by a hilly peninsula terminating to the south in Marmora (Marmara) Point and to the northwest in Cape Nikolo (Apoklistria Point). Valaxa Island, which forms the western side of the bay, extends 2½ miles in a north and south direction and attains a height of 670 feet. Arazo Road and Linaria Cove, both on the northern side of the bay, afford anchorage.

The main entrance, just southward of Valaxa Island, has a width of 1 mile. The Diavati Islets, two in number and reddish in color, form the southeastern side of the main entrance. Plaka Reef, part of which is above water, lies between these two islets, which should not be approached too closely. Being narrow and tortuous, the other entrance at the northern end of Valaxa Island is limited to vessels drawing not more than 10 feet.

Landmark.—A conspicuous white tower stands on the eastern side of Linaria Cove in position about 1½ miles east-northeastward of the northeastern extremity of Valaxa Island. It is the first object that can be identified when entering Kalamitza Bay.

A light is exhibited from a white iron tower with a red band standing on Latomeio (Valaxa) Point, the southern extremity of Valaxa Island.

6-28 Arazo Road (Aragma Bay), the northeastern semicircular head of Kalamitza

Bay, has a white sandy beach. From this bay extends a valley that divides the mountainous land on the northwest from that on the southeast, and from a distance the island has the appearance of being divided into two parts. Anchorage in depths of 19 to 10 fathoms, good holding ground, is available in the inner part of this bay. As the water is deep and the bottom steep, care should be taken that the anchor does not drag, especially during strong northerly winds that prevail in the summer.

Water may be obtained one-half of a mile southward of Arazo Road. Rocks above water extend a short distance from the shore at this place.

6-29 Linaria Cove, which has considerable depths, indents the northern side of Kalamitza Bay to the westward of Arazo Road, from which it is separated by a promontory. On the eastern side of the cove is a small boat basin, the commercial port of call for the town of Skyros and a lobster center. A breakwater, about 164 feet long, extends northwestward from the shore. Linaria, the settlement around this basin, has a population of 150, and at the head of Linaria Cove is Akhirones, another small settlement. There is a small dock in Linaria Cove.

Landmarks.—A conspicuous cemetery with a prominent white cross stands on the same point of land as Linaria Cove light. This cemetery and a white church located about 100 yards eastward of the light serve as good landmarks for vessels approaching Linaria Cove from the south-southwestward.

Anchorage.—A recommended anchorage in Linaria Cove in 26 fathoms of water for vessels not exceeding 300 feet is as follows: Approach Linaria Cove with the conspicuous tower in range with Mt. Klari on the bearing 047° and anchor when Linaria Cove Light bears 105°. Vessels exceeding 300 feet in length should remain southwestward of this anchorage at a distance determined by

their length. At night depths of less than 19 fathoms in the inner part of the cove are covered by the green sector of the light at the boat basin. Many vessels anchor as soon as they pass from the white sector into the green sector, dropping their anchors in depths of 23 to 17 fathoms. The bottom is firm, and six shots of chain is sufficient even for the violent northeasterly winds which often blow here. Vessels must avoid anchoring in the western part of Linaria Cove, as a submarine cable from Port Kumi, Euboea Island, is landed on the western shore.

A light is exhibited from a blue iron column, 19 feet high but difficult to identify, on the southern side of the boat basin at Linaria Cove.

6-30 Off-lying islands and dangers.—Two islands and several dangers lie off the southwestern side of Skyros Island.

Skyropulon (Skiropoula), the outer island lying 5 miles westward of Valaxa Island, has a diameter of 1 mile and attains a height of 617 feet. Rocks above and below water extend as far as 600 yards eastward and southward from the eastern part of the island. The easternmost rock is large.

Erinia, a narrow rocky island extending 1 mile in a north and south direction, lies midway between Skyropulon and Valaxa Island. The middle part of the western coast has depths of less than 5 fathoms extending nearly 500 yards from it, while foul ground extends a short distance from the southern extremity of the island, which should not be rounded too closely.

Erinia (Erinies) Rocks, three rocky patches, are located southward of the island of Erinia. The southernmost patch with a depth of 6 fathoms lies $1\frac{3}{4}$ miles southwestward of the southern extremity of the island, while the other two patches, one with a depth of 5 fathoms and the other with a depth of 8 fathoms, lie close together in a position

1¼ miles southwestward of this same extremity.

Navtilos Rock, over which the depth is 4 fathoms, lies three-fourths of a mile westward of the Erinia Rocks. All of these rocks are southward of a line between the southern extremity of the island of Skyropulon and that of the island of Erinia.

6-31 Coast.—Stinangali (Pevko) Bay is the southeasternmost of three bays indenting that part of the southwestern side of Skyros Island between Valaxa Island and Cape Oros. Entered northward of Valaxa Island, this bay recedes 1 mile in a northeasterly direction, decreasing in width from 1 mile in its entrance to 400 yards at its head. Along the precipitous shores are great depths, the only danger near them being a 2¾-fathom rocky patch located one-third of a mile eastward of the northwestern entrance point and 200 yards off the northern shore. Buves (Lakhonisi), a rocky islet 23 feet high, lies in the western approach to the bay and is separated by great depths from the mainland. The islet should be given a berth of more than 100 yards.

The depths in the outer part of Stinangali Bay are too great for anchoring. Marble from Valaxa Island is loaded at the head, where there is a small wharf with a mooring buoy. As the rocky bottom does not afford sufficient holding, vessels should leave at the first sign of westerly winds.

St. Phokas (Ayios Fokas) Bay, the next large bay northwestward of that of Stinangali, from which it is separated by a small and deep bay, recedes nearly one-half of a mile in a northerly direction. Two rocky islets, 16 and 15 feet high, lie southward of the northwestern entrance point. The passages between these islets themselves and the point are deep, but the islets should be given a berth of more than 100 yards. The outer part of this bay is too deep for anchor-

age, but large vessels can obtain temporary shelter from northerly winds in depths of 11 to 8 fathoms about 400 yards off the head. The bottom of sand and weeds is firm. Some ruins and a well are located on the eastern side of the head.

6-32 Oros Bay, the northwesternmost of the three bays, is open to the southward, and the land both eastward and westward of it reaches great heights. The depths are too great for anchoring, but local craft obtain shelter from northerly winds at the head, where there is a limited area of lesser depths.

Cape Oros (38°53' N., 24°26' E., *H. O. Chart 4157*), the westernmost extremity of Skyros Island, is the termination of a mountainous promontory, 1,050 feet high, forming the northwestern side of Oros Bay. The precipitous sides of this promontory are steep-to. Southward of Cape Oros, from which it is separated by a deep passage with a width of 300 yards, lies Kuluri (Koulouri) Islet. About 300 yards southeastward of this steep-to rocky islet is Shag Rock, a smaller islet with sunken rocks close to it.

6-33 Coast.—Between Cape Oros and Kartsimon Point, 6½ miles north-northeastward, the western coast of Skyros Island is irregular. There are a few islets and rocks off it, but none of these dangers exist over one-half of a mile offshore.

Kartsimon (Kartsino) Point, the northern extremity of Skyros Island, is the termination of a high rocky projection. A rocky shoal fringes both sides of the projection and extends one-half of a mile northward from the point. A small rocky islet lies on this shoal.

South Podia (Notio Podhi) Rocks consist of a rocky islet lying 1¼ miles northward of Kartsimon Point. From this islet, rocks above and below water extend 1,200 yards southward, leaving a narrow and deep pas-

sage between them and the rocky shoal extending northward from Kartsimon Point. This passage is not recommended.

North Podia (Vorio Podhi) Rocks, another rocky islet with rocks above and below water extending as far as 400 yards from it, lies 1 mile north-northwestward of the islet of South Podia Rocks. The channel between these islets is deep at a distance of 400 yards from either islet. A light is shown on North Podia Rocks.

6-34 EASTERN SIDE OF SKYROS ISLAND.—The coast from Kartsimon Point trends $5\frac{1}{2}$ miles southeastward to Pureia (Pouria) Point, a low and cultivated point with two windmills charted on it. The northern half of the coast is bordered by shoals extending offshore to a distance of 500 yards, while the southern half has shoals extending one-half of a mile offshore. Vrykolakonisia, a large rock, lies off Pureia Point, which also has shoal depths extending $1\frac{1}{4}$ miles eastward and the same distance southward from it. Vrykolakonisia Spit, having depths of 6 fathoms and being a continuation of the shoal depths, extends as far as 3 miles eastward from Pureia Point. This whole area should be approached with caution.

6-35 Skyros (Skiros), the main town on the island, is located 1 mile southward of Pureia Point. Dimitrius (Dhimitrios) Rock, over which the depth is 3 feet, lies on a shoal two-thirds of a mile off the shore fronting the town of Skyros. Elsewhere on this shoal, extending 500 yards north and south, are depths of $2\frac{1}{2}$ to 4 fathoms. Within this shoal are depths of 5 to 8 fathoms. Anchorage in a depth of 12 fathoms has been taken southeastward of the town of Skyros and southward of Dimitrius Rock. From this berth the outer rock off Pureia Point will bear 006°.

A small steamer runs twice weekly from Skyros to Kimi and another steamer once a week from Piraeus to Salonika stopping at Skyros. As there are no docks at Skyros, passengers and cargo must be landed through the surf.

About $1\frac{1}{2}$ miles southward of the town of Skyros is Port Akhili, a small bay full of rocks. Between Port Akhili and Lithari Point (sec. 6-24), $7\frac{1}{2}$ miles southeastward, the coast is high, precipitous, and steep-to. Within this stretch of the coast rises the summit of Skyros Island. Alonaki Bay, immediately northward of Lithari Point, is too deep for anchoring.

6-36 ISLANDS NORTHEASTWARD OF KHELIDROMI ISLAND.—Piperi (*northern extremity, 39°22' N., 24°19' E., H. O. Chart 4148*), the northeasternmost island of the Northern Sporades, lies about 22 miles north-northwestward of Skyros Island. This uninhabited and mountainous island extends $2\frac{1}{2}$ miles in a north and south direction and has a width of 1 mile. No dangers exist off its precipitous coast, as well as in the passage separating it from the island of Iura, located 6 miles westward. Even a boat cannot find shelter at this island.

6-37 Psathura (Psathoura), the northernmost island of the Northern Sporades, is located $9\frac{1}{2}$ miles northwestward of that of Piperi. Having a height of only a few feet, the island extends about 1 mile in a northerly and southerly direction. At the northern end of the island are some remains of ancient fortifications, and at the southern end is a small well of water. The western coast is steep-to, but the eastern coast to a distance of $\frac{1}{3}$ mile offshore is bordered by a shoal, which continues around the southern end of the island.

The small islet of Muia (Miya) lies about one-half of a mile southward of Psathura,

and the bottom between them is foul, rocky, and uneven. Although the depth midway between them is from 3 to 7 fathoms, vessels should not pass through. Muia is surrounded by rocky shallow ground, and at 700 yards 234° from the islet is a rock with less than 1 fathom of water on it.

A light is shown close to the northern end of Psathura Island.

The current during northerly winds and calms sets strongly toward Psathura Island and has been the cause of many disastrous wrecks. Eastward of Piperi, in October 1916, a slight northeast by east set was observed with a fresh breeze from south-southwest; and in November, between eastward of Piperi and northward of Skyros, there was no current with light breezes from east-southeast.

Venus Bank, with a depth of 44 fathoms, was reported to lie 21 miles northeastward of Psathura Island.

6-38 Iura (Yioura) is the island lying southward of the island of Psathura, the passage between the rock southwestward of Muia Islet and the island of Iura being 2½ miles wide, deep, and clear of dangers. The island is 4 miles in length in a north and south direction and has a width of about 1 mile, tapering to a point at its northern end. Having neither a harbor nor a roadstead, this island is uninhabited and almost inaccessible.

Iura was reported to lie about 1 mile 235° from its charted position.

Iura (Yioura) Channel, separating Steno Point, the southwestern extremity of the island of Iura, from Kento (Kendo) Point, the northeastern extremity of the island of Pelago, is nearly 2 miles wide. Papu (Pappous), Kubi (Koumbi), and Prasson, three islets in the middle of the southeastern part of this channel, are steep-to, and the channel is deep on either side of them.

The currents in Iura Channel are influenced by the direction and the force of the wind.

6-39 Pelago (Pelagos), the island located 2 miles southwestward of that of Iura is 4½ miles long north and south, 2½ miles wide, and 1,312 feet high in its middle part. Several monks live on this mountainous island, where drinking water is scarce even in the rainy season.

Pelerissa, an island, lies in the entrance to Kira Panayia, a deep bay indenting the southwestern part of the island of Pelago. Although narrower, the passage into the bay northward of Pelerissa, is deeper. A light is shown on the summit of Pelerissa Island.

The only safe anchorage in this bay is inside, off a small yellow islet located in the northern part. Being very limited, this anchorage is suitable only for small vessels, which must pass westward of the yellow islet and be ready to drop the anchor at a moment's notice. The southeastern part of this deep bay would appear to a stranger as a suitable place to anchor, but the bottom is treacherous in this part, which should not be used except in case of necessity.

Melissa, a small steep-to rock above water, lies 1 mile eastward of the southern extremity of the island of Pelago and two-thirds of a mile offshore. This rock constitutes a serious danger because of its small size.

6-40 Port Planedhi (Planitis) (plan on H. O. Chart 4148), located in the northeastern part of the island of Pelago, is entered 1,600 yards southward of Kyra (Kira) Point, the northern extremity of the island. This natural and enclosed harbor affords safe anchorage to small vessels against all winds common to the northern Aegean Sea. Between Kyra Point, fringed by shoal water to a distance of 400 yards, and the entrance

lies Sphika (Sfika) Islet, connected to the coast by shoal water. The width of the elongated entrance decreases from 200 yards in the outer part to 90 yards in the inner part and the least depth in midchannel is 3 fathoms.

The port has depths of 9 to 5 fathoms, mud, and terminates in a southeastern and a southwestern arm separated from each other by a promontory with a hill on it. During northerly winds a heavy swell sets into the outer part of the entrance, but the water in the port is smooth.

Between the entrance to Port Planedhi and Kento (Kendo) Point, the northeastern extremity of the island, are two other small bays, both unsuitable for anchorage.

Pelago Channel, the passage between the island of Pelago to the northeastward and Khelidromi Island to the southwestward, is $3\frac{1}{2}$ miles wide and clear of dangers except for 2 small islets close northward of Gregali Point, the easternmost point of Khelidromi Island.

6-41 KHELIDROMI (ILIODHROMIA) (ALONNISOS) ISLAND (*southwestern extremity, $39^{\circ}08'$ N., $23^{\circ}50'$ E., H. O. Chart 4148*), separated from the island of Pelago to the northeast by Pelago Channel, extends $10\frac{1}{2}$ miles in a northeasterly and southwest-erly direction, has a width of $1\frac{1}{2}$ to $2\frac{1}{2}$ miles, and attains a maximum height of 1,590 feet. Along its coasts, precipitous for the most part, are great depths free of dangers, and only a few islets, which should be given a berth of 1,500 yards, lie a short distance offshore. Peristeri Island, the Adelphi Islands, and the Skantzura Islands, all three located southeastward of the south-eastern side of Khelidromi Island, are described with that side of the island. The last two named present dangers.

The best anchorage, the only one which can be used by large vessels, is in the area between the northern part of the southeast-ern side of Khelidromi Island and the west-ern side of the island of Peristeri.

Only a small part of the mountainous surface is cultivated, and the products raised are insufficient for the needs of the inhabi-tants. Cattle raising, as well as fishing, is developed. Most of the inhabitants, num-bering about 800, reside at Alonnisos, a village at the southwestern end of the island.

6-42 The northwestern coast of Kheli-dromi Island is precipitous and steep-to. It is indented by several small bays open to the west or northwest. Besides having great depths, these bays are unsuitable for anchor-age on account of the northerly winds, which blow during most of the year. Kali Am-mos, the third bay from the southwest, is fronted by two islets, Stavro and Manola. The depth is only $1\frac{1}{2}$ fathoms in the channel separating Stavro, the southern islet, from the coast.

6-43 The northeastern coast of Kheli-dromi Island is only 2 miles long between Eiraka (Yerakas) Point to the northwest and Gregali Point to the southeast. Port Eiraka (Firakos), a small inlet receding two-thirds of a mile in a southwesterly direction with a width of 200 yards and having a depth of 8 fathoms near its head, is entered 1,500 yards southward of Eiraka Point, which is steep-to. Although relatively open to the northeast, this inlet affords good refuge to small vessels. Along its shore is a settlement, inhabited only during a part of each year. The inlet located immediately westward of Gregali Point and open to the north does not afford anchorage, being too deep. Northward of Gregali Point as far as one-half of a mile are two islets. Moro, the northeastern islet, is surrounded by rocky shoals and has a rock close southwest-

ward of it. Red (Paidhi) Islet, the southwestern one, is steep-to.

6-44 The southeastern coast of Khelidromi Island, which is rather straight, has depths of more than 5 fathoms at a distance of 200 yards offshore. The greater portion of the northern part of this coast is fronted by the island of Peristeri.

Kokino Kastro (Kokkinokastro), a small, red, sharp promontory projecting eastward from the coast in a position westward of the southern end of the island of Peristeri, was the site of an important town in ancient times. Tzorti Bay, the small inlet sheltered from the south by this promontory, affords shelter to small vessels, especially against northwesterly winds. Red Islet, a small rocky islet with a sunken rock off its southern side, lies not far southward of this promontory.

The small bay entered 1 mile southwestward of Kokino Kastro affords shelter against northerly winds to very small vessels. Larger vessels must avoid a 5-fathom rocky shoal lying in the middle of the entrance by keeping to either the northeastern or the southwestern entrance point.

Port Patateres (Ormos Patitiri), the bay entered 2 miles southwestward of Kokino Kastro, serves as one of the commercial harbors for the village of Alonnisos. Two islets, with shoal water extending a short distance eastward from them, lie close off the southwestern entrance point. This bay, the entrance to which is over one-half of a mile wide and open to the southeast, is divided into three arms, with a settlement at the head of each. The northeastern arm is the largest and deepest of the three.

Provisions in limited quantities and drinking water in abundance are procurable.

6-45 Peristeri (Peristera), the island lying parallel to the southeastern coast of Khelidromi Island, is $4\frac{1}{2}$ miles long and

nearly divided into two parts, the southern of which is wider and 817 feet high. The shores of this island are free from dangers. Aspro Point, the northern extremity, is separated from Khelidromi Island by a deep passage with a width of 400 yards. As this low and white point is fringed by depths of 3 fathoms, vessels must keep to the Khelidromi side of the passage. The southern part of Peristeri is separated from Khelidromi by a deep passage with a width of one-half of a mile.

Inside the southern passage is a wide and very deep bay, at the eastern part of which is Port Vasiliko. The northern arm of this port affords excellent shelter to small vessels against northerly winds, during which time these vessels can also obtain shelter leeward of a sandy promontory on the Khelidromi side of the bay. This promontory is $1\frac{1}{2}$ miles southwestward of Aspro Point. The three inlets on the southern side of the island of Peristeri are suitable only for boats.

Likorima (Likorema), the islet located eastward of Aspro Point, is separated from the eastern coast of the island of Peristeri by a deep channel with a width of three-fourths of a mile.

6-46 The Adelphi (Adhelfia) Islands, extending 5 miles in a northeasterly and southwesterly direction, lie 6 miles off and parallel to the southern part of the southeastern coast of Khelidromi Island. Adelphi (Adhelfi), the largest and middle island of the group, is 1 mile long north and south and attains a height of 525 feet. The coast of this rocky and uninhabited island is free from dangers, the depths being great along the precipitous eastern side.

Adelphi Pulo (Adhelfopoulo), a smaller rocky island, lies 400 yards northeastward of Adelphi, from which it is separated by a channel with a depth of 5 fathoms and a

rock above water in its southern part. A rock above water also lies close northward of Adelphi Pulo.

Cambrian (Kambrian), a rock above water, lies three-fourths of a mile north-northeastward of that off the northern end of Adelphi Pulo. Shoal depths extend a short distance southward from Cambrian, but otherwise the depths in the passage between these two rocks are deep. At night Cambrian constitutes a danger, as it is very low.

Palir (Polirikhos) and Gadaro (Gaidharos), the southernmost islets of the group, lie from 2 to $2\frac{3}{4}$ miles south-southwestward of the large island of Adelphi. These two small rocky islets rise from rocky shoal ground, which extends southward and northward from each islet. A $1\frac{1}{2}$ -fathom rocky patch lies 600 yards north-northwestward from Gadaro, the southern islet. A foul area, the position of which is approximate, lies with its center about 250 yards westward of the southwestern end of Gadaro. A foul patch, with dumped ammunition, lies about 800 yards northwestward of Palir. A prominent gray truncated tower stands on Gadaro. During bad weather the waves break with fury on these dangers. As they are low, these islets constitute a danger at night or during poor visibility.

6-47 Skantzura (Skantzoura) Islands (*northern extremity, $39^{\circ}06' N.$, $24^{\circ}06' E.$, H. O. Chart 4148*), consisting of Skantzura and several small islets extending 5 miles in a north-northeasterly and south-southwesterly direction, lie $4\frac{1}{2}$ miles southeastward of the Adelphi Islands. These islands are low compared with most of the other islands in the Aegean Sea; therefore a stranger shaping course to pass them at night would be well advised to give them a good berth, unless the night is clear and calm when they can be easily seen at 3 miles as a low dark line.

Skantzura (Skantzoura) has an irregular coast but does not afford anchorage. A monastery stands on an elevation $1\frac{1}{4}$ miles

southward of Glypha (Glifa) Point, the northern extremity of the island. Off the northwestern side of the island are three islets, with shoal water extending 800 yards northward from the northernmost one. These islets are separated from the coast by a deep channel with a width of 500 yards.

Strongylo (Strongilo), a small, round, rocky islet, lies three-fourth of a mile westward of the middle of the western side of Skantzura. Depths of 1 fathom extend 300 yards in all directions from the islet. Parausa (Prasso), a rocky islet lying three-fourths of a mile southeastward of Strongylo, is separated from Skantzura by a passage with a width of 300 yards and a depth of 8 fathoms.

Skandilio (Skandilion), located 1,200 yards southwestward of the southwestern extremity of Skantzura, from which it is separated by a deep passage, is a rocky islet with a rock above water at its northern end. Depths of 3 fathoms or less fringe the entire islet to a distance of 400 yards and extend as far as $\frac{1}{2}$ mile northward from it.

Koraka, another rocky islet, lies 1 mile southwestward of Skandilio, from which it is separated by great depths. A rocky shoal with a depth of $1\frac{1}{2}$ fathoms lies one-half of a mile southeastward of Koraka. Vessels passing southward of the Skantzura Islands must give a wide berth to the shoal, generally marked by breakers.

6-48 The southwestern side of Khelidromi Island, only 1 mile long between Notos Point to the southeast and Teleio (Telion) Point to the northwest, is indented by Murtia (Mourtia) Bay to a maximum distance of one-half of a mile. The northeastern shore of the bay is further indented by two smaller bays, and nowhere do depths of less than 3 fathoms extend more than 150 yards offshore. Frequented by sailing vessels, this bay can be used as a temporary shelter against northeasterly winds by large

vessels. Large vessels must avoid the 5-fathom rocky shoal in the entrance at a position one-third of a mile east-southeastward of Teleio Point. Northwestern winds, as well as those from southeast to east, cause a sea, and a stay in this bay is rendered dangerous during winds from south to southeast.

Murtia Bay is the commercial harbor for the village of Alonnisos, built on some high land not far in the interior. Provisions, especially meat and fish, are procurable, and drinking water must be obtained from the village, as that at the harbor is brackish.

A light is exhibited from a white iron tower on Teleio Point.

6-49 **Khelidromi (Iliodhromia) (Alonnisos) Channel**, over 2 miles wide, is between the southwestern side of Khelidromi Island and the eastern side of Skopelos Island. Mikro, a steep-to rocky islet, lies 1,400 yards westward of Teleio Point, and the passage between them is deep and used most generally by vessels using Khelidromi Channel. St. Georgio (Ayios Yeoryios), a rocky islet larger than Mikro, lies 400 yards southwestward of that islet, from which it is separated by a deep passage. The passage between St. Georgio and Skopelos Island is reduced considerably in width by depths of $1\frac{1}{2}$ fathoms extending 600 yards west-southwestward from St. Georgio.

According to the Greek Sailing Directions, Khelidromi Channel is the most preferred by vessels bound to or from the Gulf of Saloniki (Thermaikos Kolpos).

A light is exhibited from a white iron tower, 8 feet high, on Mikro Islet.

The currents in Khelidromi Channel are influenced by the winds, and at times attain considerable velocities.

6-50 **SKOPELOS ISLAND** (*southern extremity, $39^{\circ}04' N.$, $23^{\circ}43' E.$, H. O. Chart 4148*), the second from the west of the

Northern Sporades, is separated by Khelidromi Channel from Khelidromi Island to the east and by Skopelos Channel from Skiathos Island to the west. Being elongated and triangular in shape, the island is 11 miles long in a northwesterly and southeasterly direction, and has a width of $4\frac{1}{2}$ miles in its southwestern part and only 1 mile in its mountainous northwestern part, where it attains the maximum elevation in Mt. Delphi (Dhelfi), 2,150 feet high.

The fertile surface of this mountainous island is well cultivated, grain, fruit, and olives being raised. The inhabitants exceed 6,000, the greater part of whom reside in the capital town of Skopelos.

The northeastern coast of Skopelos Island, high and inhospitable, is of no interest except for Skopelos Bay. Depths of more than 5 fathoms exist everywhere at a distance of 650 yards offshore.

6-51 **Skopelos Bay**, which indents the eastern part of the northeastern coast, is three-fourths of a mile wide in its entrance and recedes southward for a distance of 1 mile. Although the depths in the entrance are 22 fathoms, the outer half of the bay has depths of 11 to $5\frac{1}{2}$ fathoms, and the inner half under 5 fathoms. Shoal depths extend as far as 200 yards from the shores of the bay, and a steep-to rock above water lies 150 yards east-northeastward of the western entrance point.

It is almost impossible to remain at Skopelos Bay during the winter on account of northeasterly winds, but these winds are rarely troublesome in the summer. The best anchorage for large vessels is off the western shore of the outer part of the bay. Vessels drop their starboard anchors in a depth of 10 to 7 fathoms and run hawsers to the rocks at the foot of the cliffs. The sandy bottom is firm. Two breakwaters form a small boat harbor on the eastern side of

the town; the depths within are from 10 to 16 feet. The northern breakwater of this boat harbor, which has been broken by the sea, extends underwater beyond its visible end. During good weather medium-sized vessels can anchor 300 to 400 yards north-eastward of the visible end of the northern breakwater in depths of 5 to 6 fathoms, sand, fair holding ground.

A light is shown from the head of each breakwater.

An aeronautical radiobeacon is located at Skopelos.

6-52 Skopelos, the capital of the island, is built on a low rocky hill standing on the western side of the head of the bay, and presents an imposing appearance from seaward. The inhabitants number about 4,100. The town has a post office, a telegraph office, and a customhouse. Provisions are available in limited quantities. Potable water is available, but the supply is scarce, and there are no facilities for supplying ships with water. Steamers make regular calls.

6-53 The eastern and southern coasts of Skopelos Island do not have depths of less than 5 fathoms extending more than 500 yards from the shore. Two bays indent the southern side of the island.

Staphilis (Stafileos) Point, a small promontory at the eastern end of the southern side of the island, has a reddish color. When seen from the distance, this point has the appearance of an isolated rock. Depths of less than 5 fathoms extend 400 yards from the eastern and southern sides of the point.

Staphilis (Stafileos) Bay, the eastern bay located immediately westward of the point with the same name, recedes one-half of a mile in a northerly direction. The great depths in the entrance decrease to 10 fathoms at a position 300 yards off the head, and 100 yards inside the 10-fathom curve is the 5-fathom curve. Several rocky islets lie close off the shore in the western half of the bay. Easterly winds raise a sea in the bay. Drinking water may be obtained from a spring, and a road through a well-cultivated valley connects this bay with Skopelos Bay.

Agonia Bay (Ormos Agnondas) is located $1\frac{1}{4}$ miles westward of Staphilis Bay, from which it is separated by Velona Point, the southern extremity of the island. This bay, open to the southwest, has a 6-fathom rocky shoal in the middle of its entrance, but elsewhere in the bay the depths are too great for anchoring. At the head of the bay are smaller inlets, where small vessels may obtain shelter from northerly winds. The principal and most frequented of these inlets recedes 400 yards in an easterly direction and has a width of 200 yards. There are several houses and a well on its shores.

6-54 The southwestern coast of Skopelos Island, forming the eastern side of Skopelos Channel, is fronted by several islets and dangers, which, especially at night, must be guarded against by vessels using the channel. In one locality vessels may obtain shelter from northerly and easterly winds.

Cape Muti (Miti), the termination of a small promontory with a hill, is the southwestern extremity of Skopelos Island. The cape is steep-to.

Port Panormos, located $1\frac{1}{4}$ miles northward of Cape Muti, recedes one-half of a mile in an easterly direction and has a width of one-fourth of a mile. The depths for the most part are too great for anchoring. On the southern side of the bay is a small inlet with considerable depths in its entrance, but inside it is shallow and has poor holding ground with rocks and wrecks. On the eastern shore of the inlet stand several houses.

6-55 Dangers.—Dasa (Desa), a steep-to rocky islet, 100 feet high, lies 800 yards west-northwestward of the northern entrance point of Port Panormos, from which it is separated by deep water. Strongylo (Strongilo), a smaller, steep-to, rocky islet with a sunken rock 100 yards southward of it, lies 650 yards west-southwestward of Dasa. Plero (Plevro), a steep-to rocky islet, lies 1 mile north-northwestward of Dasa, and about 650 yards southwestward of this islet is the rock Kasida (Kasidha),

with depths of 1 fathom extending a short distance northward from it.

Praximada (Paximadha), the northernmost islet off the southwestern coast of Skopelos Island, lies $1\frac{1}{2}$ miles northwestward of Plero. A $5\frac{1}{2}$ -fathom rocky shoal lies 1 mile east-southeastward, and a similar shoal lies one-half of a mile west-northwestward of Praximada.

6-56 Loutraki (Klima) Bay, a slight curve in the coast about $2\frac{3}{4}$ miles southeastward of Guruni Head, affords excellent refuge, for vessels of different displacements, from northerly and the easterly winds, especially the latter. The settlement of Loutraki, with 100 inhabitants, is situated on the shore, and has a small breakwater. The villages of Ano Klima and Kato Klima are located farther inland from the coast. The village of Glossa (Platani), about 2,000 inhabitants, is located northward and high above Loutraki, and is easily visible from a short distance out to sea. Large vessels can anchor one-third of a mile seaward of Loutraki in a depth of 7 fathoms, firm sand and weeds. A light is shown at Loutraki.

Provisions in limited quantities and water are available. Steamers make regular calls, and there is a telegraph office.

6-57 Guruni Head (Cape Gourouni), the northwestern extremity of Skopelos Island, has steep-to precipitous sides. Immediately to the interior of the head rises a peak, 1,036 feet high.

Guruni Head Light is exhibited from a square masonry tower and dwelling, 47 feet high.

6-58 Skopelos Channel, separating the southwestern side of Skopelos Island from the eastern side of Skiathos Island, has its minimum width of $3\frac{1}{2}$ miles in the northern part. It is one of the recommended passages through the Northern Sporades for vessels bound to or from the Gulf of Saloniki (Ther-

maikos Kolpos). Its transit presents no difficulties. To avoid the off-lying dangers along Skopelos Island, keep to the Skiathos Island side, where the islets are steep-to on their eastern sides with the exception of Zogria, the southernmost islet. Vessels should pass the lighthouse on Repi Islet at a distance not greater than 1 mile.

6-59 SKIATHOS ISLAND (*northern extremity, $39^{\circ}13'$ N., $23^{\circ}28'$ E., H. O. Chart 4148*), the westernmost of the Northern Sporades, is separated from the southeastern coast of Magnesian Promontory by Skiathos Channel. This irregular-shaped island extends 6 miles in a west-southwesterly and east-northeasterly direction and has a maximum width of 4 miles in its northeastern part, where it attains a height of 1,401 feet in Mt. Stavros. Several islets lie in the approach to the small gulf indenting the southeastern part of the island and embracing the Skiathos Harbor, the only safe anchorage. Off the western side of the island lie several rocky dangers, affecting navigation in Skiathos Channel.

The fertile surface of this mountainous island is covered mostly with fruit trees, but also considerable areas are planted in pine trees. The island is well watered, and the summer climate is mild and moist. Most of the 3,200 inhabitants reside at the capital town of Skiathos.

6-60 Northwestern side of Skiathos Island.—Cape Gurnais (Gournes), the northern end of the short western coast of the island, is the northeast limit of Skiathos Channel. Gurnais (Gournes) Shoal, a 3-fathom patch, lies 500 yards northwestward of the cape, off which are also some sunken rocks.

Between Cape Gurnais and Kastro Point, $3\frac{3}{4}$ miles northeastward, the coast is indented by several small bays, unsuitable for

anchorage on account of being open to northerly winds and having a rocky bottom. If necessary, the best anchorage is in Katavothra Bay, 2 miles east-northeastward of Cape Gurnais. A berth in a depth of 8 fathoms is obtainable at a distance of 400 yards off the shore of this bay.

Kastro Point, the northern extremity of Skiathos Island, is the termination of a narrow promontory. Kastro Nisia, two small rocky islets, 105 feet high, together with shoal water, lie as far as 500 yards northward of this point.

The northeastern side of Skiathos Island is $2\frac{3}{4}$ miles long between Kastro Point and Katergaki Point. The northern half of this coast is dominated by a peak, 1,319 feet high, while the southern half is indented by two bays, neither of which affords anchorage.

6-61 The eastern side of Skiathos Island, only $1\frac{3}{4}$ miles in length, terminates to the south in a peninsula, which forms the eastern side of Skiathos Harbor. Aspro Islet, 252 feet high, is separated from the island by a passage having a width of 400 yards and a least depth of $2\frac{1}{2}$ fathoms in midchannel. The eastern side of Aspro Islet is free from dangers, but in the waters southward of this islet are two rocky reefs, each with a rock showing above the water.

The southeastern side (*H. O. Chart 4149*) of Skiathos Island for its entire length of $2\frac{1}{2}$ miles is indented by a large bay. Having Skiathos Harbor in its northern part, this bay is fronted by several islets with shoals in their vicinity.

6-62 Islets—Dangers.—Arkakion (Arkaki) Islet, located three-fourths of a mile southward of Aspro Islet, extends 1,200 yards north and south and attains a maximum height of 291 feet in its northern part. A pinnacle rock with $4\frac{1}{2}$ fathoms over it lies 400 yards southward of the islet. In addi-

tion to the two rocky reefs in the waters southward of Aspro Islet, a $3\frac{1}{4}$ -fathom and a $5\frac{1}{2}$ -fathom shoal lie, respectively, 250 and 450 yards northward of Arkakion Islet; therefore vessels bound to Skiathos Harbor should not use the passage between these two islets.

Repi Islet, 104 feet high and rocky, lies 300 yards eastward of the precipitous southern part of Arkakion Islet. The passage between them has a depth of 8 fathoms in midchannel. All the dangers near Repi Islet are above water, and none exist eastward of it. A light is shown on the summit of the islet.

Mirango (Marangos) Islet, 195 feet high and rocky, lies one-half of a mile westward of the northern part of Arkakion Islet, from which it is separated by great depths, and one-fourth of a mile southward of the peninsula forming the eastern side of Skiathos Harbor. In the middle of the passage separating the islet from the peninsula is a depth of $4\frac{3}{4}$ fathoms, but shoal depths extend a considerable distance into this passage from either side. Depths of less than 5 fathoms do not extend more than 100 yards from the eastern and southern sides of Mirango Islet.

Zogria (Tsoungria) (Pakhia) Islet, located about 1 mile southward of Mirango Islet and about the same distance southwestward of Arkakion Islet, is the southernmost and largest of the islets fronting the bay that indents the southeastern side of Skiathos Island. This rocky islet has a length of 1 mile in a north and south direction, a width of one-half of a mile, and a height of 296 feet. The northern end is a sandy tongue, off which lies a rock, 34 feet high. Depths of less than 5 fathoms extend as far as one-half of a mile northward from this sandy

tongue, and the remaining coasts of the islet are fringed by shallow depths, which extend over 250 yards westward from the low and sandy southern part of the western coast and 200 yards southeastward from the southeastern extremity of the islet.

Zogriaki (Mikro Tsoungria), a rocky islet 178 feet high, lies 900 yards westward of Zogria Islet, and the passage separating them has considerable depths in the middle. The outermost dangers off this islet, fringed by shallow depths and rocks to a short distance, are a 2-fathom rocky shoal located 150 yards northward of the projecting point at the middle of the northern shore, another similar shoal lying 400 yards north-northwestward of the same point, and a 4-fathom shoal lying 200 yards westward of the southwestern point of the island.

Praso Nisi, a low and small islet fringed by shoal depths to a short distance, lies 1,800 yards northwestward of Zogriaki and 1,100 yards north-northeastward of Kavo Kalamaki, the southwestern entrance point of the large bay. About 500 yards west-southwestward of this islet is a projecting point of the mainland, and a dangerous shoal lies in the western half of the passage separating them.

A light is shown on Praso Nisi.

6-63 Skiathos Harbor ($39^{\circ}10' N.$, $23^{\circ}30' E.$, *H. O. Chart 4149*), the northern arm of the large bay fronted by all the islets described above, recedes three-fourths of a mile in a northerly direction and decreases in width from 1,200 yards in the entrance to 800 yards in its middle part. The eastern

part of the bay has sufficient depths for very large vessels.

A short distance within the middle of the entrance lies Daskalonisi (Dhaskalonisi), a small rocky islet, 15 feet high, surrounded by shoal depths to a distance of 50 yards. Depths of less than 5 fathoms extend north-northwestward from this islet to the northwestern shore, which is also bordered by depths of less than 5 fathoms extending offshore as far as 250 yards.

A basin for small vessels and boats is located off the eastern side of the town of Skiathos, located on the western entrance point of the harbor. This basin is formed by an islet, 50 feet high, connected to the town by a causeway. On the islet stands a conspicuous yellow building with a red roof.

A light is shown on Daskalonisi.

6-64 Anchorage.—Large vessels can obtain anchorage northeastward of Daskalonisi in about 14 fathoms. Good anchorage can be obtained eastward of Daskalonisi in 16 fathoms. The holding ground close northward of the islet is bad.

Directions.—Three of the passages between the islets fronting the large bay should not be used because the shortening of the distance by their use is insignificant to the risk involved. When coming from the east, give the southern end of Arkakion Islet a berth of at least 800 yards; changing course at short intervals, pass between 200 and 800 yards southward of Mirango Islet. When coming from the southward, pass through

the middle of the passage between Zogriaki Islet and the mainland to the westward.

6-65 Winds.—Skiathos Harbor is subject to very strong winds from north to east; they blow usually from October to February and during the summer at the time of trade winds, about August. Southerly winds blow during the winter, but the resultant sea does not render anchorage in the harbor impossible. A forecast of southerly winds is furnished by clouds gathering on Mt. Delphi of Euboea Island, the presence of which makes almost certain a change of the weather for the worse.

On two occasions in July, a vessel experienced northwesterly winds, which sprang up without warning and blew for more than 12 hours with force 5 to 6, reaching force 9 in squalls.

6-66 Skiathos, the capital town of Skiathos Island, has a population of 3,200. A post office, a telegraph office, and customhouse are located in the town. Provisions are available in limited quantities. Water of uncertain quality is available; however, there are no facilities for supplying ships. Steamers that connect with Volos and Piraeas make regular calls.

6-67 Southern side of Skiathos Island (*H. O. Chart 4124*).—From Kavo Kalamaki, the southeastern extremity of the island, the coast, with considerable depths a few hundred yards off, trends nearly 1 mile westward to the entrance of Platania Bay.

Platania Bay, about 1 mile wide in its entrance, recedes three-fourths of a mile in a northerly direction. The bay has general depths of 19 to 12 fathoms. A 3-fathom rocky shoal lies about in the middle of the bay toward its eastern shore, and another rocky patch with a depth of 1 fathom lies 500 yards off the outer part of the eastern shore.

Marino (Marines) Rocks, a patch of rocks, 8 feet high, with other rocks beneath the surface of the water around them, lie

800 yards southwestward of the western entrance point of Platania Bay. Turoneis (Touranes) Islet, 63 feet high, lies closer to the coast northwestward of the Marino Rocks.

Kuknareais (Koukounaries) Bay, immediately westward of Turoneis Islet, is 1 mile wide in its entrance and recedes one-half of a mile in a northerly direction. Along the northwestern shore depths of less than 5 fathoms extend as far as 200 yards offshore. This bay is a good anchorage for small vessels unable to pass through Skiathos Channel during northerly winds.

6-68 Skiathos Channel ($39^{\circ}09' N.$, $23^{\circ}22' E.$, *H. O. Chart 4124*), over 2 miles wide, separates the western coast of Skiathos Island from the southeastern coast of Magnesian Promontory of the mainland. Besides having several sunken dangers, this channel is full of drift seaweed, wood, etc., during northeasterly winds. Because of the imperfect nature of the survey, the channel is not recommended for deep-draft vessels. Rocks are reported to be within the 5-fathom curve on either side of the channel. Directions for navigating the channel follow the detailed description of the southeast coast of Magnesian Promontory.

Obstructions.—Obstructions exist in Skiathos Channel along a line drawn in a 280° direction from Cape Gurnais to the Magnesian Promontory.

The currents in Skiathos Channel are variable and influenced by the wind. North-going currents predominate, their velocity fluctuating between 1 and 2 knots. A vessel reported that she encountered an east-southeasterly current with a velocity of 2 knots in a position 2 miles southward of Cape Puda; no wind was blowing.

6-69 The western coast of Skiathos Island is $1\frac{3}{4}$ miles in length between Cape Puda to the south and Cape Gurnais (sec. 6-60) to the north. The southern half

forms a bay with depths of 4 fathoms as far as one-half of a mile from its shores.

Cape Puda (Pounda) (Poudha), the southeastern limit of Skiathos Channel, is the termination of a narrow promontory, 270 feet high, extending one-half of a mile in a south-southwesterly direction from the island. Shoal depths and rocks extend a considerable distance from the sides of this promontory, and the outermost danger is Puda (Poudha) Shoal, a $2\frac{1}{4}$ -fathom rocky shoal lying 500 yards southwestward of Cape Puda.

Agia Elena (Ayia Eleni) Point, located 1 mile northward of Cape Puda, is the westernmost point of Skiathos Island. Inland of this point, which projects in a northwesterly direction, is a peak, 352 feet high.

Agia Elena (Ayia Eleni) Rock, over which the depth is $11\frac{1}{2}$ fathoms, lies 1,800 yards northwestward of Cape Puda and 1,350 yards southwestward of Agia Elena Point. About 400 yards eastward of this rock and close off the shoal depths extending from the western side of Skiathos Island lies a 5-fathom rocky shoal. Agia Elena Rock may be generally seen during the day by keeping a good lookout. Cape Sepias and Cape Promiri, located $2\frac{1}{2}$ miles north-northwestward, lead westward of the rock when they are in range 339° .

6-70 Southeast coast of Magnesian Promontory.—Arapi (Arapis) Point, the southwest limit of Skiathos Channel, is located 4 miles westward of Cape Puda. A short distance inland of this point is a well. From Arapi Point the coast trends $31\frac{1}{2}$ miles north-northeastward to Cape Sepias and is indented by two small bays. Nikolo (Nikolaos) Rock, with a depth of $21\frac{1}{2}$ fathoms, lies $11\frac{1}{4}$ miles northeastward of Arapi Point and 500 yards offshore; Euryalus Rock, with a depth of $2\frac{3}{4}$ fathoms, lies 1,200 yards

southward of Cape Sepias and 650 yards offshore.

Cape Sepias (Sipia), the northwest limit of Skiathos Channel, is a dark, steep point, 365 feet high. As the next cape northward of this cape has a reddish color, these two capes form an excellent landmark for vessels approaching Skiathos Channel from the northward, and help to distinguish this channel from that of Skopelos.

The coast northward of Cape Sepias is described in section 7-2.

Cape Sepias Light is exhibited from an iron beacon on a column.

6-71 Lephtari (Levtheris) Rock ($39^\circ 08' N.$, $23^\circ 21' E.$, *H. O. Chart 4124*), the head of a rocky shoal, lies in the western part of the fairway at the southern end of Skiathos Channel. Large vessels should give the lighthouse on this rock a sufficient berth, as depths of less than 3 fathoms extend as far as 120 yards from this rock.

Lephtari Rock Light is exhibited from an iron beacon, 43 feet high, painted in black and red horizontal bands.

6-72 Directions for Skiathos Channel.—By night the navigation of Skiathos Channel can be considered simple and safe for vessels of any draft with the aid of the fixed white sector, from 187° to 190° , of Pondiko Nisi Light, which marks the deepest part of the fairway. By day its navigation does not afford the same safety, as a vessel is obliged to rely exclusively on its compass, and the margin of error in a sector of 003° cannot be too great. Lephtari Rock lies 470 yards westward of the western limit of this light sector, and the dangers and shallows off the western side of Skiathos Island are 1,600 yards eastward of the eastern limit of this light sector.

When coming from the southward, steer for a position northward of Pondiko Nisi Light. When this light bears 190° , alter

course to the right and steer through the channel with this light bearing 190° astern. Having passed eastward of Cape Sepias Light, alter course as necessary.

When coming from Trikiri Channel, pass either northward or southward of Lephtari Rock. It would be better to pass 400 yards southward of this rock, and then follow the directions as if coming from the southward.

When coming from the northward and having recognized the entrance, steer to pass Cape Sepias Light at a distance of three-fourths of a mile. Having passed the light, steer between 189° and 190° for Pondiko Nisi Light. Having passed Lephtari Rock Light, alter course as necessary.

6-73 TRIKIRI (TRIKERI) CHANNEL (*eastern entrance, $39^{\circ}06' N.$, $23^{\circ}20' E.$, H. O. Chart 4124*) is between the southern coasts of Magnesian Promontory and Trikiri Peninsula on the north and the northern coast of Euboea Island on the south. The channel is $5\frac{1}{2}$ miles wide in its eastern entrance between Pondiko Nisi and Magnesian Promontory, narrows within to $4\frac{1}{2}$ miles, and extends westward for 12 miles, where it divides into two arms, one leading northward to Volos Channel (sec. 6-80) and the other leading southwestward to Oreos Channel (sec. 5-147). There are few dangers in the channel, the depths being considerable. Passage through this channel is very easy along its axis, and both ends are well lighted.

Obstructions.—Obstructions exist in Trikiri Channel in two places.

(a) From Cape Puda along a line drawn in a 205° direction to Pondiko Nisi Light.

(b) From Cape Griva along a line drawn in a 165° direction to Euboea Island.

Bank.—A bank, with a depth of 13 fathoms, lies about $1\frac{1}{4}$ miles northeastward of the eastern extremity of Pondiko Nisi.

6-74 Southern side of Trikiri Channel.—From Cape Artemision, the northern extremity of Euboea Island, the southern side of the channel trends 9 miles in a west-northwesterly direction to Cape Kephala, and has sunken rocks and depths of less than 5 fathoms extending offshore as far as 500 yards in places. Pondiko Nisi, the island off Cape Artemision, has already been described with the cape in section 6-21.

Platania Bay, located 1 mile westward of Cape Artemision, has in its eastern half sunken and above-water rocks lying as far as 500 yards offshore. Chumbra (Khoumbra) Bay, the next one westward of Platania Bay, is separated from that bay by a point projecting in a northwesterly direction. Guves (Gouves) Bay, immediately westward of Chumbra Bay, has toward its interior the village of Guves (Gouvais), with 400 inhabitants. About $2\frac{1}{2}$ miles west-northwestward of Guves Bay is an unnamed bay, inland of which is built the village of Kurbazi (Artemision), with 400 inhabitants.

A wreck lies sunk in the western approach to Chumbra Bay, and another wreck lies sunk in the western approach to Guves Bay.

Cape Kephala (Kefalas), the western limit of the southern side of the channel, has at a short distance within it a lagoon, called Megalo Dhivari.

6-75 Northern side of Trikiri Channel.—Platania Bay, located $1\frac{1}{3}$ miles westward of Arapi Point, the eastern limit of the northern side of the channel, as well as the southwest limit of Skiathos Channel, affords good anchorage sheltered from northerly winds. The best berth is in a position eastward of a sandy beach in depths of 6 to 10 fathoms. At the head of the bay is a small settlement, which serves as the commercial harbor for the town of Promiri (1,250 inhabitants), the settlement of Platania, and

the settlement of Limin Panayias, all three located farther in the interior.

Andriami Bay, located $1\frac{1}{2}$ miles westward of Platania Bay, recedes 1 mile in a westerly direction and has a width of 1 mile. Its uninhabited shores are free of dangers except that a few sunken rocks lie a short distance off its northwestern shore. The depths are too great for anchoring except those in the small cove on the northern side, where they are 10 fathoms.

From the southern entrance point of Adriami Bay the northern side of the channel with great depths near it trends 8 miles westward to Cape Kavulia (Kavoulia), the eastern limit of the entrance to the Gulf of Volos. Projecting southward from this shore are three points, Cape Griva, Cape Vathi, and Ayios Vatos Point, respectively, from east to west. A small rocky islet lies close off Ayios Vatos Point, and rocks under water lie close off the other two points.

Trikiri (Trikeri) Bay, located three-fourths of a mile southeastward of Cape Kavulia and open to the southwest, affords anchorage to small vessels at its head, where they are sheltered from northwesterly winds that blow in the Gulf of Volos. Large vessels must take up their berth by sounding, as the depths close offshore suddenly increase to 23 and 27 fathoms. A spit with depths of 9 fathoms extends about 600 yards southwestward from the point about midway between the bay and Cape Kavulia. This bay, together with the small settlement and customhouse at its head, is the commercial harbor for the town of Trikiri (Trikeri) (1,250 inhabitants), located on the summit of a hill not far in the interior. The town, where there is a post and a telegraph office, is not visible from the anchorage.

6-76 GULF OF VOLOS (PAGASITIKOS KOLPOS) (*H. O. Chart 4124*), one of the

largest and important gulfs in Greece, extends along the eastern part of Thessaly. A considerable part of the gulf is surrounded by highland. Magnesian Promontory, forming the eastern side of the gulf, attains its maximum height in Mt. Pelion (Pilion), 5,079 feet high, northward of the gulf, while Trikiri Peninsula, extending westward from the southern end of Magnesian Promontory and forming the southern side of the gulf, is from 1,040 to 2,171 feet high. Mt. Klimo (Khlomon), westward of Trikiri Peninsula, from which it is separated by the entrance, is 2,981 feet high.

This large gulf extends 16 miles northward to the Port of Volos, and its greatest width is 17 miles in the middle. The general depths for the most part are over 40 fathoms, but in the westernmost part they are under 30 fathoms, decreasing gradually toward the shore. The gulf is free from off-lying dangers, but some islets and several shoals lie off the irregular southern shore.

Winds.—The Gulf of Volos is assailed principally by northwesterly winds, which, during the winter, sometimes cause unfavorable conditions not only in the central and southern parts but also in the harbor of Volos. Southerly winds blow with moderate intensity, and the sea caused by them is troublesome only for small vessels.

6-77 ENTRANCE TO THE GULF OF VOLOS.—Cape Kavulia (Kavoulia) ($39^{\circ}06' N.$, $23^{\circ}03' E.$, *H. O. Chart 4124*), the westernmost point of Trikiri Peninsula, is the eastern entrance point of Volos Channel. Within this steep-to cape rises a hill, 1,286 feet high, with the town of Trikiri (sec. 6-75) on its summit. The coast northward of the cape is without interest.

A light is exhibited from a square masonry tower, 30 feet high, on Cape Kavulia.

6-78 Cape Stavros ($39^{\circ}02' N.$, $23^{\circ}04' E.$, *H. O. Chart 4127*), the southern entrance point of Volos Channel, is the eastern extremity of a high peninsula extending 5 miles east-northeastward from the mainland and dividing the western end of Trikiri Channel into Volos Channel and Oreos Channel. Shoal depths extend only a short distance from the coast of this peninsula in places.

6-79 Port Pteleos (Ormos Pteleou) (plan on *H. O. Chart 4124*), the deep bay on the western side of the entrance to the Gulf of Volos, is entered 3 $\frac{1}{4}$ miles westward of Cape Stavros. Having an average width of 1 mile, this bay extends 2 $\frac{1}{2}$ miles in a west-southwesterly direction. On a point projecting from the northern side of the bay and at an elevation of 466 feet lie the conspicuous ruins of a tower. A rock with a depth of 6 fathoms lies in the middle of the bay about $\frac{1}{2}$ mile southward of these ruins. A wreck lies about $\frac{1}{2}$ mile southwestward and a 12-fathom bank about 1 mile east-southeastward of the ruins, respectively.

Immediately eastward of the ruins the northern shore is indented by a bight with shoal depths. At the head of the bight is the small settlement of Pegadi (Pigadhi), the commercial harbor for the town of Phtilio (Pteleon) (1,400 inhabitants), located a short distance in the interior. Postal and telegraphic facilities are available.

Westward of the ruins is another bight open to the eastward. From 12 to 13 fathoms in the middle part, the depths shoal gradually toward the shore. This bight, which has a firm sandy bottom, affords good anchorage.

Another bight forms the southwestern part of Port Pteleos. From 16 fathoms in the entrance, the depths decrease gradually toward the shore, nowhere off which depths of less than 3 fathoms extend more than 100 yards with the exception of the shore at the

128-foot hill on the western side, where they extend 300 yards. Along the southwestern shore is the settlement of Akhillion, another commercial harbor for the town of Phtilio. This bight affords good anchorage in depths of 13 to 6 fathoms.

6-80 The coast (*H. O. Chart 4124*) from Cape Alkini (Pigadhi), the northern entrance point of Port Pteleos, trends 2 miles northward to Cape Prioni. Besides being irregular, this stretch of the coast has sunken rocks lying as far as 400 yards off it. At Cape Prioni the coast turns abruptly and trends 2 miles north-northwestward to Klimo Head (Cape Khlomo), west-southwestward of which rises Mt. Klimo (Khlomon), 2,930 feet high. A rocky shoal with a depth of 7 fathoms lies one-half of a mile northward of the eastern extremity of Cape Prioni.

Volos Channel, the entrance to the Gulf of Volos, is entered northward of the peninsula terminating to the east in Cape Stavros. Being deep and 3 miles wide between Klimo Head to the west and Cape Kavulia to the east, this channel presents no dangers to navigation.

6-81 WESTERN SIDE OF THE GULF OF VOLOS.—Nies Bay is entered 3 miles northwestward of Klimo Head, and the coast between them is free of dangers. A promontory forms the eastern side of the bay, which recedes 1 $\frac{1}{2}$ miles in a south-southeasterly direction and has an average width of three-fourths of a mile. The depths are from 20 to 10 fathoms, and those less than 10 fathoms are found within 400 yards of the shore. The houses of a settlement are scattered along the shore at the head. The inner part of the bay affords temporary anchorage, which, however, is exposed to northerly winds.

6-82 Port Mijella (Ormos Mitzellas) (*H. O. Chart 4148*), entered 3 miles northward

of Nies Bay, is between the northern end of St. Nikolo (Ayios Nikolaos) Island, 60 feet high, on the east and a large promontory, 522 feet high, on the west. Extending 600 yards in a north and south direction, the island is separated at its southern end from the mainland by a narrow and shallow passage. This bay is about one-half of a mile wide in the entrance and recedes over one-half of a mile in a southerly direction. Being 20 to 10 fathoms in the outer part, the depths shoal gradually toward the head. The best anchorage is westward of the narrow and shallow passage in depths of 8 to 10 fathoms, firm sand, but winds from the north-northeast make it impossible to work cargo.

Conspicuous marks are the Venetian castle on the hill behind the village church, and the steep, stepped street leading from the main square to the church.

Mijella (Amaliapolis) (Nea Mitzella), a village of 650 inhabitants, is located on the southwestern shore at the head of Port Mijella. The region southward of the village is planted in olive trees. In the village are a post and a telephone office. A road leads to the inland town of Surbi. The main masonry pier at the village has a length of 157 feet, a width of 13 feet, and a depth of 5 feet at its head. The northwestern concrete pier has a length of 61 feet, a width of 9½ feet, and a depth of 3 feet off its head.

6-83 Maxwell (Periklis) Point, Almiros Point, and Smith (Tsaloukos) Point are the three northern extremities from east to west, respectively, of a large promontory separating Port Mijella to the east from Port Surbi to the west. Almiros Point rises to a height of 124 feet, and the hills on the main part of the promontory attain a maximum height of 522 feet. Being open to the north, the two small bays formed by these three points are unsuitable for anchorage.

6-84 Port Surbi (Sourpi) (*H. O. Chart 4148*), the southernmost part of Almiros Bay, is entered between Smith Point, the northwestern extremity of the above-mentioned promontory, and Nora (Vourgaza)

Point, located 1½ miles to the westward. Receding 2 miles in a southerly direction, this bay has in its outer eastern part depths of 13 to 11 fathoms, which decrease gradually toward the western shore and the head. Lefroy Patch a 4½-fathom rocky shoal, lies 1 mile south-southwestward of Smith Point. The eastern shore is indented by two coves, and the point separating them rises to a height of 365 feet. The northern and larger cove has depths of 8 to 5 fathoms, being shallow only at its head, while the southern cove has depths of less than 4 fathoms.

Along the western shore of Port Surbi depths of less than 3 fathoms extend offshore as far as 300 yards. On this shore in a position about 1 mile southward of the western entrance point is the small settlement of Zingheli (Tsingeli), the commercial harbor for the large inland town of Almiros. Projecting 402 feet from the shore at the settlement is a pier with depths of 11 feet at its head. When a ship is expected, a light is shown on the head of the pier. A dangerous wreck is located about 800 yards east-northeastward of the pierhead.

Port Surbi affords safer anchorage than Port Mijella. Even the interior of this bay, surrounded by low land, is subject to northwesterly winds, very troublesome in the Gulf of Volos. Anchorage is possible anywhere in the interior except near Lefroy Patch. There are three recommended berths. The first in a depth of 7 fathoms is 800 yards eastward of the pier at Zingheli; the second in a depth of 8 fathoms is in the middle of the entrance to the northern cove indenting the eastern shore; the third in a depth of 13 fathoms is 600 yards southwestward of Smith Point.

6-85 Almiros Bay (Ormos Almirou) (*39° 14' N., 22° 53' E., H. O. Chart 4124*) is the middle portion of the western part of the Gulf of Volos. From the entrance between Almiros Point and Anghistri (Angistri) Point, 7 miles north-northeastward, this bay recedes over 4 miles in a westerly direction. The general depths of 20 to 10 fathoms decrease gradually toward the western shore, where depths of less than 3 fathoms extend

offshore only a short distance.

The western shore from Port Surbi, the southern part of the bay, trends 6 miles northward and is backed by a vast plain. Built on this plain in a position several miles inland is the town of Almiros (6,500 inhabitants), with a post and a telegraph office. Farther northward is Nea Ankhialos, a recently developed town of 2,000 inhabitants; it also has a post and a telegraph office.

An offshore mooring berth for tankers, consisting of 4 mooring buoys laid in an east-west direction, is about 4 miles northwestward of Almiros Point; the depth at the westernmost buoy is 21 feet. One small craft is available to assist in mooring. Easterly winds, prevalent during winter, may interfere with secure mooring being effected.

The northern shore about 6 miles in length is steep and irregular. Off the numerous coves, unsuitable for anchorage, are considerable depths. About one-half of a mile southwestward of Anghistri Point, the northeastern limit of Almiros Bay, lies the islet of Agio Nicholas (Ayios Nikolaos). A sunken rock lies 200 yards southwestward of the islet, which is fringed by shallow depths to a short distance, and another sunken rock lies in the passage separating this islet from the mainland. Depths of less than 5 fathoms extend 400 yards eastward from Point Anghistri.

6-86 The coast from Anghistri Point turns abruptly to the northwest for 1½ miles and then northeastward for the same distance to Cape Seskoulo, which will be described with Port Volos. Between the headlands mentioned the western shore of the gulf recedes 1 mile, forming a bay, from the head of which a shoal bank extends about 400 yards. This bay is at the mouth of a valley flanked by an amphitheater of hills, the ridge southward of it rising to a height of 1,818 feet, those on the west to 1,427

feet, while the Bulbulithera (Bourboulithra) Hills on the northern side are 660 feet high.

Between Anghistri Point and the cultivated point on the opposite shore the Gulf of Volos contracts to a width of 3½ miles, forming a square-shaped bay known as Ormos Volou, which at the distance of 2½ miles from its mouth contracts still more, forming the Port of Volos to be described after the eastern side of the gulf.

6-87 EASTERN SIDE OF THE GULF OF VOLOS.—The coast (*H. O. Chart 4124*) forming the eastern shore of Volos Channel trends 3 miles in a north-northeasterly direction from Cape Kavulia, the westernmost extremity of Trikiri Peninsula. It is steep-to and backed by a mountain range, which along this part of Trikiri Peninsula attains a height of 1,286 feet.

6-88 Paleo Trikiri (Palaio Trikeri), an irregular-shaped island 424 feet high, lies northward of that part of the coast of Trikiri Peninsula trending in a northeasterly direction from Volos Channel. The channel separating them has a width of 800 yards and considerable depths. The northern and western coasts of the island are each indented by a cove, and within the latter one stands a monastery. Rocks lie off the western shore of the northern cove.

Vessels are prohibited from approaching this island.

Tsamados (Tsamadhos) Shoal, a 2-fathom rocky patch, lies 400 yards northeastward of Alexis Point, the eastern extremity of Paleo Trikiri. A 2-fathom rocky patch lies 800 yards northeastward of Pardalos (Pardhalos) Point, the northern extremity of the islet, and midway between them is still another rocky patch with the same depth.

Pithu (Pithou) Islet, lying 1,700 yards northwestward of Paleo Trikiri, has rocks above water extending a short distance from

its southern and western extremities, but elsewhere the islet is steep-to. The channel between these two islets is deep with the exception of a 6-fathom rocky area located 800 yards southward of Pithu Islet.

6-89 Trikiri Harbor.—At Trakhilas Point, the northern extremity of Trikiri Peninsula about three-fourths of a mile eastward of Paleo Trikiri, the northern side of the peninsula turns sharply to the southward and southwestward, forming the northwestern shore of Trikiri Harbor, where the water is too deep for anchoring. From the head of the harbor, only one-half of a mile from Trikiri Channel on the other side of Trikiri Peninsula, the irregular shore trends in a general northeasterly direction for $6\frac{1}{2}$ miles to Kapri Point, the western entrance point of Port Vathudi.

6-90 Presutha (Prasoudha) Islet.—Nearly in the middle of this part of the shore is a deep bight, in the outer part and off the eastern shore of which is an islet, 44 feet high, named Presutha (Prasoudha) Islet. Between the latter and Port Vathudi are two smaller bays, the western of which is known as Port Varelia, with a cluster of dry and sunken rocks in the middle of its entrance.

Shoals.—A rock with 1 fathom of water on it lies one-half of a mile 270° from Presutha Islet. Another rock with the same depth on it lies nearly 400 yards southwestward, and a patch with 5 fathoms is situated one-half of a mile 298° from Presutha Islet.

Caution.—Considerably less water than shown on the chart was reported on the 7-fathom patch lying two-thirds of a mile southward of Presutha Islet and the same distance eastward of Cape Marathea (Marathia), the eastern entrance point of Trikiri Harbor.

6-91 Port Vathudi (Ormos Vathoudhi) (*plan on H. O. Chart 4148*), the extreme southeastern part of the Gulf of Volos, is located at the junction of Magnesian Promontory and Trikiri Peninsula. Sheltering

the port from the west is Alatas Island, separated at its southern end from the mainland by a narrow and shallow channel. The island extends 1.3 miles in a general northerly and southerly direction and attains a height of 177 feet in its northern half.

Glaro Islet lies about 200 yards off the middle part of the western coast of Alatas Island. Several shoals with depths of 1 to $3\frac{3}{4}$ fathoms lie as far as 150 yards northward and 200 yards southward of Glaro Islet.

The entrance to the port between Kapri Point, the northern point of Alatas Island, and the village of Melina, located on the mainland to the eastward, is one-half of a mile wide and farther southward becomes only 350 yards wide. The general depths in the entrance channel are 20 to 15 fathoms. The port itself is a large circular basin with depths of 17 fathoms, mud. Shoal depths exist only in the smaller coves indenting the shores and in the passage separating Alatas Island from the mainland to the south. Foul ground lies about 1 mile south-southeastward of Kapri Point.

A light is shown from the head of the pier at Melina, about $1\frac{1}{2}$ mile eastward of Kapri Point.

A light is shown on the pier; it is not shown after midnight.

6-92 Melina (Milina), the village of 700 inhabitants on the eastern side of the entrance to Port Vathudi, has a customhouse. Provisions can be obtained. There is a pier at the village.

6-93 Coast (H. O. Chart 4124).—From the entrance to Port Vathudi the eastern shore of the Gulf of Volos trends first 9 miles north-northwestward and then 6 miles westward to a cultivated point, where the gulf contracts considerably to form Ormos Volou. Along this steep-to shore are Horto (Khorton), Kalam (Kalamos), Leftokastro, Avisus (Afissos), Kala Nera, Garjia (Kato Gatzea), and Malaki, all of which are villages with facilities only for coasters.

From the cultivated point the shore of the contracted part of the gulf trends 3 miles northwestward to Goritza Point, the eastern entrance point of the Port of Volos, and is indented by two small bays. Agria Bay, the southeastern one, has on its northern shore the village of Agria, with 1,000 inhabitants. About 250 yards southward of the village anchorage is available in depths of 9 to 11 fathoms, sand. On the southern side of the western part of the village is a quay with a depth of 20 feet alongside. Three piers extend from the village eastward of this quay.

A light is shown from the head of the central pier at Agria.

The northwestern bay, immediately east of the entrance to Port of Volos, has on its shore a cement factory and an oil installation; each has its own piers. The T-head petroleum pier has a depth of 33 feet at its head. Vessels moor stern to the T-head. The cement factory L-shaped pier has a depth of 30 feet. The finger pier, close westward of the above pier, is about 150 feet long with depths of 23 feet alongside. A light is shown from the head of the pier that lies about 250 yards east-southeastward of the cement factory. A cantilever loading and unloading device is on the pierhead. An aerial cableway extends from this cantilever to the cement factory. Mooring buoys and platforms are located in the vicinity of the piers.

Shoal.—A depth of $1\frac{1}{4}$ fathoms exists about 700 yards 122° from the head of the eastern pier.

6-94 THE PORT OF VOLOS ($39^\circ 21' N.$, $22^\circ 57' E.$, *H. O. Chart 4149*), the head of the contracted northern part of the Gulf of Volos, is the most important port in Thessaly. From its entrance between Cape Seskoulo on the west and Goritza Point on the east the port trends over 1 mile in a

northwesterly direction and has an average width of nearly 1 mile. On the northeastern side is the city of Volos, together with its artificial harbor. The western part of the port is shallow and bordered by low swampy land.

6-95 Landmarks.—A hospital stands southeastward of the harbor in a position about $\frac{2}{3}$ mile west-northwestward of Goritza Point. A radio station stands about 425 yards northwestward of the hospital and a tower about 650 yards farther northwestward. A belfry is charted 400 yards north-northwestward of the tower. A conspicuous minaret stands about 1,400 yards west-northwestward of the belfry.

Cape Seskoulo (Sesklo), the western entrance point of the port, rises to a height of 118 feet. The land within the point was the site of an ancient city and terminates to the north in Yolkas (Iolkos) Point. The bights on both sides of Yolkas Point are shallow. The area around Cape Seskoulo is a recreation center for the inhabitants of the city of Volos. A light is shown from Cape Seskoulo.

Shoal.—A sandy shoal with a depth of $5\frac{3}{4}$ fathoms lies one-half of a mile southeastward of the light structure on Cape Seskoulo.

Goritza (Goritsa) Point, the eastern entrance point of the port, is backed by Goritza Hill, 657 feet high. The 5-fathom curve is only a short distance off the point. Westward of the point is a dry river bed.

A buoy marks a wreck which lies about 325 yards southeastward of the light structure on the breakwater.

6-96 Harbor.—The seaward side of the city is quayed throughout its whole length, and off the middle part of this quay has been constructed the harbor. A breakwater shelters the harbor from the southward. Separated from the quay by a narrow passage for boats, this breakwater trends first southwestward for 200 yards and then west-southwestward for 850 yards. The Railway

Jetty, extending 400 yards in a south-southeasterly direction from the quay, forms the western side of the harbor. Extending perpendicularly from the Town Quay into the harbor is Town Pier, having a length of about 260 yards. The 3-fathom curve lies between 100 and 250 yards offshore in the vicinity of Cape Seskoulo, thence trends in a general northwesterly, northerly, and north-easterly direction to the head of the harbor close northwestward of the root of the Town Pier. A 3 1/2-fathom patch lies close off the head of the breakwater and a small foul patch lies about 325 yards southeastward and is marked by a light buoy; there is another foul area the center of which is located about 550 yards northwestward of the head of the breakwater.

Lights.—A light is shown from the head of the breakwater.

6-97 Anchorage.—During the fall and winter months violent northwesterly winds strike the Gulf of Volos, and are troublesome for vessels remaining in the harbor, especially those tied up with their sterns to the bollards on the breakwater. At such time both anchors with plenty of chain should be used.

Vessels can obtain anchorage southeastward of the breakwater in depths of 5 1/2 to 8 fathoms. During southerly winds, which rarely blow, communication with the shore is difficult for these vessels anchored outside of the harbor.

A pier is under construction (1967) in the vicinity of the Railway Jetty.

Tides.—The mean high-water interval at Volos is 9h 13m. The mean range is 1.5 feet; the spring range 2.2 feet.

Pilotage is compulsory for the Port of Volos. The pilotage district covers the area northward of Cape Seskoulo on the west and Agria Bay on the east. Pilots board vessels about 1 mile southeastward of the harbor entrance.

6-98 VOLOS (39°22'N., 22°57'E., *H. O. Chart 4149*), with a population of about 75,000, is located at the head of the Gulf of Volos. This city is one of the most important industrial centers of Greece, and also has one of the most important harbors.

Wharves.—The Town Quay is divided into a southeastern section and a northwestern section by Town Pier. The southeastern section, with a length of about 1,950, has depths of 15 feet alongside. The northwestern section, about 680 feet long, has depths of 10 to 24 feet alongside. Town Pier is about 820 feet long, with depths of 26 to 30 feet alongside. The head of Town Pier is about 328 feet long with a depth of 24 1/2 feet alongside. The outer section of the Railway Jetty is about 490 feet long and 65 feet wide, with 15 feet alongside. Dredging in progress (1966) on the inner section of the Jetty and in an area westward of it. Along the inner side of the breakwater, 4 vessels 300 feet in length with drafts up to 23 feet can med-moor.

The port has two small tugs, several lighters, four mobile cranes of 4 1/2-ton capacity, and 2 floating cranes with capacities of 12 to 40 tons.

Minor hull and engine repairs can be made.

Supplies.—Provisions are procurable. Coal, diesel oil and fuel oil are kept in stock. Untreated water is piped to the quays.

Communications.—About 2,000 passenger vessels put into Volos yearly, and the number of cargo vessels surpasses 300. Several coasting lines make Volos either their starting point or their terminus.

Communication by land is well developed. The city is the starting point for the railroad system of Thessaly, as well as for the whole network of highways.

There is frequent communication by air with Athens.

Hospital.—A public hospital is maintained.

Meteorological table.—See appendix II.

CHAPTER 7

GREECE—GULF OF SALONIKI TO ALEXANDROUPOLIS

7-1 GULF OF SALONIKI (THERMAIKOS KOLPOS) (*H. O. Chart 4150*), broadly speaking, includes the whole northwestern part of the northern Aegean Sea between Cape Sepias on the southwest and Cape Paliuri on the northeast; consequently the eastern coast of Thessaly (Thessalia) is described under the heading of this gulf. In a narrower sense the gulf is within a line between Platamona Point on the west and Kassandra Point on the east. The gulf is free of off-lying dangers, but caution is necessary off several low projecting points. Saloniki Bay (Kolpos Thessalonikis), the northeastern extension of the Gulf of Saloniki, is entered from the northern part of that gulf by a narrow entrance.

The land on the western side of the Gulf of Saloniki presents a magnificent range of mountains, which includes Mt. Pelion (Pilion), 5,079 feet high, rising over the head of the Gulf of Volos, Mt. Ossa (Kissavos), 6,489 feet high, and farther northwestward Mt. Olympus, (Oros O'limbos), attaining a height of 9,551 feet. On the eastern side of the gulf the land is also mountainous, but the summits are not as high as those on the western side.

Caution.—Soundings in the Gulf of Saloniki are from imperfect surveys.

The currents in the Gulf of Saloniki are caused by the outpourings of the rivers at its northern end. The currents, due to the general circulation through the northern Aegean Sea of the currents from the Dardanelles exercise only a slight influence along the southern part of the gulf, flowing with a small velocity in a northerly direc-

tion along the eastern shore and in a southerly direction along the western shore. See section 7-32.

7-2 WESTERN SIDE OF THE GULF OF SALONIKI—Coast (*H. O. Chart 4150*).—Panagia (Panayia) Bay, a small recess close northward of Cape Sepias (sec. 6-70), serves as a commercial harbor for the inland town of Promiri. North-northwestward of this recess the precipitous coast is free of dangers at a short distance offshore and is backed by a mountain range. Cape Promiri is located $2\frac{1}{2}$ miles north-northwestward of Cape Sepias. A conspicuous church and dwelling are located about three-fourths of a mile inland in a position about 9 miles north-northwestward of Cape Sepias. Another conspicuous dwelling is located about $1\frac{1}{2}$ miles northwestward of the above-mentioned church. Foul ground lies about $\frac{1}{2}$ mile north-northeastward of Cape Promiri.

Damuka (Damoukhari) Point (*H. O. Chart 4150*), a small promontory with high wooded hills, is located 15 miles north-northwestward of Cape Sepias. Dangerous rocky shoals lie as far as 150 yards eastward of the point. Immediately southward of the point is Damuka (Damoukhari) Harbor, a small bay having a width of 100 yards and receding 300 yards in a west-southwesterly direction. Close within the entrance, having general depths of 4 fathoms are two rocky shoals with depths of $2\frac{1}{2}$ fathoms, and the inner part of the bay has depths under 3 fathoms. A ruined mill stands on a hill on the southern side of the harbor. This har-

bor, with warehouses at its head, serves the inland towns of Changarada (Tsangaradha) (1,300 inhabitants) and Muris (Mouresi) (900 inhabitants).

About 1 mile northwestward of Damuka Point is the small settlement of Ayios Ioannis, which, under favorable weather conditions, especially during the summer, is used as a commercial harbor for the inland villages of Pilion, Kissos, Anilion, and Makarahi (Makrirrakhi). The settlement has a customhouse. Also $3\frac{1}{2}$ miles northwestward of Damuka Point is Khorephto (Khroevton), the commercial harbor for the inland town of Zagora. Khorephto has a customhouse and a telegraph office.

7-3 Cape Pori ($39^{\circ}30'$ N., $23^{\circ}07'$ E.), located 3 miles northwestward of Khorephto, is the northeast limit of Magnesian Promontory. Close off the precipitous sides of this cape lie Pori Rocks. Along this point is an open anchorage for the inland village of Pori (700 inhabitants).

Mt. Pelion (Pilion), located 4 miles southwestward of Cape Pori, rises to a height of 5,079 feet. When viewed from the southward, it shows two summits at some distance from each other. The depression between these two summits is so slight that the mountain has the appearance of a tableland.

7-4 The coast between Cape Pori and Cape Kissobo, $21\frac{1}{2}$ miles north-northwestward, recedes slightly to the west and has great depths at a short distance offshore. Vanetto (Veneton), Karamidi (Keramidhi), Sklithron, Polidhendri, and Athanat (Meli-voia), all of which are villages at equal intervals from each other, occupy positions on the heights located a short distance within this stretch of the coast. Three streams discharge along the coast as far southward as 7 miles from Cape Kissobo, and Kripsiana Point, a short distance south of the southernmost stream, has sunken rocks close off it.

7-5 Cape Kissobo (Dhermatas) rises to a hill, 767 feet high, and toward the interior, 8 miles westward, is Mt. Ossa (Kissavos), 6,489 feet high. The sides of this cape are high and precipitous. Southward of the cape is the summer anchorage for the inland villages of Athanat and Ayah (Ayia). A light is shown on Cape Kissobo. From the cape the high precipitous coast trends northwestward for 6 miles, and 5 miles from the cape and 1 mile inland is the conspicuous village of Karitza (Karitsa) (1,000 inhabitants), built at an elevation of 500 feet on the cultivated eastern slope of Mt. Ossa.

7-6 Tsaghesi (Stomion), a small settlement of 500 inhabitants and the harbor for the village of Karitza, is located on a sandy beach 2 miles northwestward of that village. About 1 mile southeastward of this settlement is a bluff point, terminating the high precipitous coast northwestward of Cape Kissobo, and northwestward of the settlement the mountain chain recedes gradually from the coast. The settlement has a customhouse, a telegraph office, and a post office. Provisions in limited quantities and drinking water are available.

The anchorage off the settlement is good during fine weather, and small vessels that frequent the place anchor in 7 fathoms, about 1,000 yards from the beach. There are 10 fathoms of water, sand, and mud, about 1,400 yards from the shore, with Cape Kissobo in range with the bluff point southeastward of the settlement, bearing 132° , and the center of the settlement bearing about 220° ; the soundings thence decrease gradually to the shore. Soundings should be taken when approaching the anchorage. A light is shown on the shore at Tsaghesi.

7-7 Salambria (Pinios) River, which has a length of about 110 miles and drains near-

ly the whole of Thessaly, discharges into the sea about $1\frac{1}{2}$ to 2 miles northward of Tsaghesi. At a short distance inland the river flows through the Vale of Tempe, a picturesque gorge about 5 miles in length between Mt. Ossa to the south and Mt. Olympus to the north. The seine can be hauled near the mouth of the river, and sole, ray, and mullet caught. In the river the current is too strong for the seine. Water may be obtained at the mouth.

Anchorage may be obtained off the mouth of the Salambria River in depths of 10 to 9 fathoms, mud. Vessels should approach this anchorage at low speed and take soundings.

7-8 Platamona (Platamon) Point ($39^{\circ}57'$ N., $22^{\circ}44'E.$, H.O. 3968), located 3 miles northward of the mouth of the Salambria River, is low and has on it the ruins of a Turkish fort. The point is fringed by shallow water, and as the depth 1 mile offshore is only 4 fathoms, vessels should give the point a berth of $1\frac{1}{2}$ miles in passing, or keep the high coast of Cape Pori bearing 151° and open eastward of Cape Kissobo.

Caution.—Banks are formed southward of Platamona Point by sediment from the Salambria River.

7-9 Mt. Olympus (Oros Olimbos), located $18\frac{1}{2}$ miles west-northwestward of Platamona Point, attains a height of 9,551 feet. The summit of this majestic mountain shows a wide surface of bare, light-colored rock, capped with snow during the greater part of the year. When viewed from the eastward, the broad side of the mountain presents a series of abrupt precipices having great heights, broken at intervals by deep ravines, and thickly covered with trees.

7-10 Coast.—Between Platamona Point and Atherida Point, 25 miles northward, the

western shore of the Gulf of Saloniki, recedes gradually westward for a maximum distance of $6\frac{1}{2}$ miles. This low shore throughout its whole length is bordered by shoal water extending offshore only a short distance, but in places the 10-fathom curve is offshore as far as $1\frac{1}{4}$ miles. To a considerable distance inland the land remains level but farther inland is the mountain chain of Mt. Olympus.

Platamona, a village of 200 inhabitants located 6 miles west-northwestward of Platamona Point, consists of a group of buildings surrounded by a high wall. This village, built on a rocky height overhanging the sea, is a good landmark for this part of the coast. The fort, located about three-fourths of a mile northwestward of the village of Platamona, is conspicuous. A stream discharges southward of the village, and at a short distance northwestward of it is the town of Leptokaria (1,250 inhabitants). Telegraphic, railroad, and postal facilities are available at Platamona.

Agios Theodoros (Skala Litokhorou), located on the shore $8\frac{1}{2}$ miles northward of the village of Platamona, is a small settlement. It serves as the commercial harbor for the inland town of Litho-Hori (Litokhoron), (4,600 inhabitants). The settlement has railroad, telegraphic, postal, and custom facilities.

Katarina Skala (Vromeroskala) (Paralia), a small settlement located 7 miles northward of Agios Theodoros, serves as the harbor for the inland village of Vromeri and the inland town of Katerini 28,000 inhabitants). This skala is the place of debarkation for excursions to Mt. Olympus. A pier, 450 feet long and with a depth of 9 feet at its head, is located here. Open anchorage is available anywhere off the skala. Depths of 5 fath-

oms are obtained 500 yards offshore, but vessels should take soundings when approaching the anchorage.

7-11 Atherida (Atheridha) Point, located 7 miles northward of Katarina Skala, is a low projecting point. Shoal depths border the point, and depths of 1 fathom are found as far eastward as 800 yards. Because of these shoal depths vessels must give the point a berth of 1 mile. Between this point and Panomi Point, on the opposite shore, the gulf narrows to about 10 miles. The village of Korinos (1,050 inhabitants) is located on the railroad 4 miles southwestward of Atherida Point.

7-12 Kitros, a town of 1,600 inhabitants, is located a short distance west-northwestward of Atherida Point. The harbor for the inland town of Kitros is an artificial basin of 400 square yards. Located northwestward of Atherida Point, this basin is difficult to identify from seaward. The depth in the channel is about 6 1/2 feet and in the basin about 23 feet.

A light is exhibited from a white iron tower, 30 feet high, standing on Atherida Point.

7-13 Skala Elevtherokhorion, located 6 1/2 miles north-northwestward of Atherida Point, is a good landing place, off which and to the southward of the banks extending from the mouth of the Aliakmon River is good anchorage. The anchorage is much frequented by Greek coasters, and affords good shelter for small craft in all weathers. The depth of water at the anchorage and in the approach to it is shallow, and only suitable for vessels of light draft. A good berth in 3 fathoms may be obtained by approaching, with a conspicuous white house standing close to the coast about one-half of a mile northwestward of Skala Elevtherokhorion, bearing 286°, and anchoring when about

1,600 yards eastward of the house. No swell appears to reach the pier, although it may be heavy in the gulf. The currents are variable and weak.

In the vicinity of Skala Elevtherokhorion stands a shrine, a white house, and a customhouse. Southeastward of the pier are steep cliffs, about 100 feet high, with a sandy beach and large boulders at their base. On the northern side the land mostly slopes gently down to a sandy beach; on the beach are several houses and warehouses, and a fountain with a copious supply of fresh water brought by pipes from the hill. This settlement is called Nea Agathoupolis. The old village of Palaion Elevtherokhorion is on an eminence 1 1/2 miles southward of the conspicuous house; the new village of Neon Elevtherokhorion is on the hill about three-fourths of a mile south-southeastward of that house.

7-14 Aliakmon (Vistritsa) River.—The principal mouth of the Aliakmon River is about 4 miles northeastward of Skala Elevtherokhorion and is fronted by shallow banks. Marshes lie on either side of the mouth.

The low broken shore between the mouth of the Aliakmon River and Vardar Point, about 8 miles northeastward of Skala Elevtherokhorion, recedes northward about 2 1/2 miles. The Loudhias River and the Vardar River discharge within this bight.

Caution.—The coast line of the marshy land at the mouth of the Aliakmon River is constantly changing, and the banks between Skala Elevtherokhorion and Vardar Point should be approached with caution, as the depths are liable to change. Depths in the northwestern part of the Gulf of Saloniki, between Atherida Point and Vardar Point, were reported in 1949 to be considerably less than charted.

7-15 Vardar (Axios) River rises on the eastern slope of the Chardagh, on the frontiers of Albania and Macedonia, and is joined by several streams in its course to the sea, which is about 160 miles long. The delta forms a low point or spit, the southeastern extremity of which lies about 5 miles eastward of the Aliakmon River entrance. The branch of the Vardar River discharging at Vardar Point is called the Old Vardar. The new bed and mouth of the Vardar River are about 3,500 yards westward of Vardar Point. The shallow water off the mouth of this river and the light buoy are described with Saloniki Bay. Before this is done the eastern side of the gulf will be described.

Several mooring buoys are located at the entrances of two creeks about 1 mile and $3\frac{1}{4}$ miles westward, respectively, of Vardar Point.

7-16 EASTERN SIDE OF THE GULF OF SALONIKI.—There are no isolated off-lying dangers on this side of the gulf. Between Kassandra Point and Panomi Point, 33 miles northwestward, the coast forms a bight, near the head of which is the Isthmus of Potidea. The narrowest part of this isthmus, about 1,400 yards wide, lies $14\frac{1}{2}$ miles northward of Kassandra Point. The coast between the above-mentioned points is mostly bordered by shallow water, which, inside the 5-fathom curve, extends offshore for an average distance of one-half of a mile.

Kassandra (Posidhion) Point ($39^{\circ}57' N.$, $23^{\circ}22' E.$), the southwestern extremity of Kassandra Peninsula (sec. 7-36) constitutes the innermost but also natural southeast limit of the Gulf of Saloniki. This low point,

narrowing in width toward its outer end, trends $2\frac{1}{2}$ miles in a southwesterly direction from the main part of the peninsula. Along its shores are no dangers, and the depths are great at a short distance offshore. When first sighted from a distance, the point appears as an island.

The coast eastward of Kassandra Point is described in section 7-37.

7-17 Kassandra Point Light is shown one-half of a mile within the extremity of the point.

Anchorage.—Anchorage may be obtained either northwestward or southeastward of Kassandra Point, according to the wind. At about $1\frac{1}{2}$ miles eastward of the point, abreast a valley, there are depths of 13 fathoms, fine sand and shells. From this position Kassandra Lighthouse bears 281° . The water shoals quickly to a depth of 3 fathoms, sand and weeds, at 400 yards from the shore. This anchorage affords shelter from northwest, through north, to northeast. The chart shows the 30-fathom curve less than one-half of a mile offshore here. Immediate departure is necessary at the least indication of change of weather from seaward.

A British naval vessel in March 1877 anchored in 12 fathoms, mud, at about $1\frac{1}{2}$ miles northward of the point. The lighthouse bore 197° . On sounding around the vessel, the navigator found that the bottom was uneven, shoaling suddenly to $4\frac{1}{2}$ fathoms at 350 yards inside the vessel. The stern swung from 20 fathoms into $5\frac{1}{2}$ fathoms.

Prohibited anchorage.—A prohibited anchorage area, the limits of which are indicated by dashed lines on the chart, extends about $1\frac{1}{4}$ miles south-southwestward, $1\frac{1}{2}$ miles southwestward, and 1 mile west-southwestward from Kassandra Point Light.

7-18 The coast from Kassandra Point trends $14\frac{1}{2}$ miles northward to Nea Potidhaia Canal. Along the southern half of this coast from south to north are the small settlements of Kalivia of Papa Kirtsi and Sivri, used as harbors for the inland towns of Fourka (700 inhabitants) and Valta (1,600 inhabitants), respectively. Kalivia of Papa Kirtsi, surrounded by a forest of pines, has a post office and steamers call. Point Pirgos, 5 miles southward of the canal, has a conspicuous ancient tower standing on it, and a short distance east-northeastward of the tower are some houses. This point, as well as the coast up to the canal, is bordered by sunken rocks.

7-19 Nea Potidhaia Canal, which separates Kassandra Peninsula at its narrowest part from Khalkidike Peninsula, connects the Gulf of Saloniki with the Gulf of Kassandra. Having a length of 1,240 yards and a minimum surface width of 117 feet, this canal can accommodate craft with a draft of 6 feet.

The land northward of the canal is cultivated, and southward of the canal are some ancient walls. On a 124-foot hill 2 miles southward of the canal is a mill, conspicuous to vessels approaching either entrance. The village of Nea Potidhaia (500 inhabitants) is located on the southern side of the western entrance to the canal. A ferry crosses the canal at this village.

7-20 The coast from Nea Potidhaia Canal trends 23 miles northwestward to Panomi Point, where the Gulf of Saloniki contracts to a width of 10 miles. In places sunken rocks lie close offshore, and the 5-

fathom curve is from $\frac{1}{2}$ to 1 mile offshore. Borunee (Vorounes) Point, 7 miles northwestward of the canal, is low and sandy. Smila Point, 9 miles northwestward of Borunee Point, is also low, as well as the land backing the bight northwestward of it. Foul areas lie about 1 mile northwestward and about $2\frac{1}{4}$ miles southeastward of Smila Point. At intervals along this entire coast from southeast to northwest are located the villages of Nea Moudhanian, Rousiko, Nea Playia, (Nea Playa), Tsaladharokhori, Nea Kallikratia, and Iraklia. Some of these villages have postal, telegraph, and custom facilities. Fuel oil is available at Nea Moudhanian but large vessels must anchor in the open sea because of the shallow depths in the port. Several motor propelled lighters are available.

There is a quay at Nea Moudhanian, nearly 200 yards long and from the middle of it a small wooden spar extends, but both the quay and the spur are suitable only for boats.

7-21 Panomi (Epanomi) Point, projecting southwestward from the low land behind it, scarcely rises above the sea. This point is very dangerous, as a sandy shoal with a depth of $2\frac{1}{4}$ fathoms lies about $\frac{1}{2}$ mile south-southwestward of it. Vessels should give the point a berth of 2 miles. The small settlement of Ormos Epanomis, located on the northern side of the point, is the harbor for the inland town of Epanomi (3,600 inhabitants). A conspicuous white house is located about 2 miles north-northeastward of Panomi Point Light.

Anchorage can be obtained on either side of Panomi Point.

Panomi Point Light is shown about 300 yards within the extremity of the point. There are four radar reflectors within $\frac{1}{2}$ mile in a sector northeastward of the light. A white stone hut, located close northeastward of the light, is reported easily identified by day.

Light buoy.—A light buoy is moored about $\frac{3}{4}$ mile southwestward of Panomi Point Light.

The coast from Panomi Point trends 7 miles north-northwestward to Tuzla Point, the southern extremity of the eastern side of the entrance to Saloniki Bay. The two bights along this coast have depths of less than 5 fathoms extending offshore as far as two-thirds of a mile. Nea Mikhaniona, a town of 1,320 inhabitants, is located at the head of the northern bight; it has a post and a telegraph office.

A patch of foul ground lies off the coast about 1,400 yards westward of a white church in Nea Moudhania. A small 5 foot patch lies near the edge of the coastal bank, and about 400 yards offshore; an area of foul ground, due to unexploded ammunition, extends about 600 yards southward from the coast in the vicinity of this patch.

7-22 SALONIKI BAY (KOLPOS THES-SALONIKIS) (GULF OF THESSALONIKI) (*H. O. Chart 4150*) forms an extension toward the northeast of the Gulf of Saloniki, with which it is connected by an entrance having a width of 3 miles between Vardar Point on the west and Cape Megalo Karaburnu on the east. The depths throughout this almost completely enclosed area are suitable for anchorage. The northwestern shore is low, marshy, and uninhabited, and along its middle part are the old mouths of the Vardar River. As shoal depths extend a considerable distance from this shore, vessels should give it a wide berth. The head of this bay toward the northeast is named Thessaloniki Bay (*Ormos Thessalonikis*), along the northeastern and eastern shores of which is the city and harbor of Thessaloniki.

7-23 Vardar (Vardaris) Point, the western entrance point of Saloniki Bay, is a low promontory trending in a southeasterly direction. A branch of the Vardar River flows along its entire length. Because of this river the form and dimensions of the point are continually changing, while at the same time its shores are surrounded to a

considerable distance by shoals, which, especially toward the south, continually change their extent.

Nisis Kavoura, with a conspicuous white house and flagstaff near its western end, lies about 1/4 mile southward of Vardar Point. A radiobeacon, from which a light is shown, stands near the western end of the islet.

A light buoy, equipped with a radar reflector, is moored about 3/4 mile southeastward of Vardar Point.

Avathi Naziki (Naziki Bank), the southern and outer extremity of which is about 3 1/4 miles northeastward of Vardar Point, is the most dangerous of the shallow depths extending from the irregular and swampy northwestern shore of the bay. Northeastward of this bank are the old mouths of the Vardar River. Depths of less than 5 fathoms extends about 1 1/2 miles offshore.

A light buoy is moored close eastward of Avathi Naziki.

7-24 Tuzla (Touzla) Point, the southern extremity of the eastern side of the entrance to Saloniki Bay, is low and sandy. This point can be easily identified from the north and the south, but from the other directions it is difficult to make out against the background of high land to the interior and to the north. Depths of less than 3 fathoms extend only 200 yards from this point, while depths of 12 fathoms exist 400 yards off it. A group of radar reflectors marks Tuzla Point.

The western edge of the bank off Tuzla Point is marked by a light buoy.

A wreck lies sunk in a depth of 5 fathoms about 600 yards eastward of Tuzla Point. A rock with a depth of less than 6 feet over it lies 1 mile eastward of Tuzla Point. On the high coast northward of this rock stands Kum Kale Fort, and three-fourths of a mile north-northeastward of the fort is the settlement of Kato Karaburnu. A conspicuous white church, with two red domes, is located about 3 miles southeastward of Cape Megalo Karaburnu. Another small settlement (Karaburnu Chifik) is located 1 1/2 miles southeastward

of that of Kato Karaburnu. A foul area lies about 1 3/4 miles southeastward of Tuzla Point.

7-25 Cape Megalo Karaburnu (Kara), which, with Vardar Point 3 miles to the westward, forms the entrance to Saloniki Bay, is located 1 1/2 miles northward of Tuzla Point, and within the low sandy shore between them are some salt pans. This cape, rising from low land, is a precipitous craggy headland, 150 feet high, with a lighthouse, a fort, and some barracks on it. At the base of the cliff near the lighthouse is a stone landing place with 4 feet of water at its head. Two conspicuous huts are located about 3/4 mile southward of Cape Megalo Karaburnu.

A light is shown on the summit of Cape Megalo Karaburnu.

Caution.—Vessels navigating in Saloniki Bay should exercise the utmost caution due to the lack of information in regard to depths. In 1949 a vessel was observed to be aground in a position about 2 miles westward of Cape Mikro Karaburnu although the charted depth was 12 fathoms.

Avathi Vespasianou (Vespasian Shoal), as limited by the 3-fathom curve, extends two-thirds of a mile southwestward from Cape Megalo Karaburnu and one-half of a mile from the shore southward of the cape.

A light buoy, equipped with a radar reflector, is moored about three-fourths of a mile west-southwestward of Cape Megalo Karaburnu. The 5-fathom curve off Avathi Vespasianou is eastward of this buoy.

Coast.—Between Cape Megalo Karaburnu and Point Mikro Karaburnu, 7 1/2 miles north-eastward, the southern and northeastern shores of Saloniki Bay are bordered by shoal water, but nowhere are depths of less than 5 fathoms found over 800 yards offshore. On the northeastern shore are located the settlement of Aretsou and the aerodrome of Sedhes; on the southern shore in a position about 4 miles eastward of Cape Megalo Karaburnu is the village of Neoi Epivatai. A conspicuous church stands on the coast about 2 1/4 miles eastward of Cape Megalo Karaburnu.

Radio tower lights.—Three radio towers are located about 6 miles eastward of Cape Megalo Karaburnu Light. Red obstruction lights are shown from each tower.

An aviation light is located about 1 1/4 miles eastward of the above radio towers.

A submarine pipeline extends 1/4 mile from shore about 3 miles north-northeastward of the radio towers. A buoy marks the outer end of the pipeline.

7-26 Point Mikro Karaburnu (40°35' N., 22°56' E., H. O. Chart 4150), the southeastern limit of Thessaloniki Bay, is 85 feet high and cliffy. Shoals and rocks lie off the northwestern side, where there are some houses and landing places. Within the point stand a fort and some barracks. As depths of less than 5 fathoms extend about 900 yards from the point, large vessels should give it a good berth. Shoaling was reported in 1944 in the vicinity of the point. A 3 1/4-fathom rocky patch is located 1,100 yards 241° from the light on Point Mikro Karaburnu.

A sewer outfall, marked at its seaward end by a buoy, extends about 500 yards from the coast about 2 miles southeastward of Point Mikro Karaburnu.

A light is shown from Point Mikro Karaburnu.

A light buoy, equipped with a radar reflector, is moored about 2 1/4 miles westward of Point Mikro Karaburnu light structure.

An aeronautical radiobeacon is located at Aretsos about 0.4 mile east-southeastward of Point Mikro Karaburnu light structure. Four red lights mark this radiobeacon.

7-27 Thessaloniki Bay (Ormos Thessalonikis), the northeastern recess of Saloniki Bay, is 2 1/2 miles wide in its entrance and trends northward for a distance of 3 1/2 miles. Along its low and uninhabited western shore are the northern mouths of the old bed of the Vardar River, in front of which extends shallows and lesser depths to a considerable distance. The Gallikos River discharges at the northern end of the bay.

A new quay is being constructed (1967) for a distance of 1/2 mile, commencing from a point on shore about 1 1/4 mile northeastward of Point Mikro Karaburnu.

The city of Thessaloniki, built along the embanked, northeastern and eastern shores of the bay, is backed by hills, and in the interior to the eastward rises Mt. Hortiach (Khortiatia), 3,987 feet high, which is visible from as far off as the entrance to the Gulf of Saloniki. The commercial part of the city, together with its harbor, is along the northeastern shore, while the suburban part (Kalamaria) is along the eastern shore. On a hill back of the commercial part stands Yedikule Citadel, a Byzantine acropolis with seven towers. Near the junction of the northeastern and the eastern shore, about $2\frac{1}{4}$ miles northward of Point Mikro Karaburnu, stands White Tower, 118 feet high, a good landmark for approaching the harbor or for anchoring. It has been reported (1965) that White Tower has turned gray and is not conspicuous. Among the villas of the suburban part are several factories (brickworks and a flour mill) with conspicuous chimneys.

7-28 Harbor ($40^{\circ}38' N.$, $22^{\circ}56' E.$, plan on H. O. Chart 4150).—The old harbor is bounded to the southeast and to the northwest by two moles extending perpendicularly from the main quay along the commercial part of the city. The area between these two moles is over 400 yards in width and is sheltered from the southwest by a detached breakwater. The southeastern mole has a width of 100 yards and extends 200 yards southwestward from the quay; the northwestern mole has a width of 50 yards and extends 250 yards southwestward from the quay, but the harbor side of this mole has a length of only 200 yards. The detached breakwater extends about 400 yards in a southeast-northwest direction, thence about 700 yards in a westerly direction from the northwestern end of the eastern arm.

A wharf extending south-southwestward for about 550 yards is located $\frac{1}{2}$ mile south-southeastward of White Tower. The area between the above-mentioned wharf and the existing shoreline has been reclaimed. Works are in progress at the southern end of the wharf.

Harbor works of great magnitude are under construction in the area northwestward of the harbor and the northwestern entrance to the harbor is closed. The main,

or southeastern entrance is about 200 yards wide between the detached breakwater and the head of the southeastern mole.

The Yugoslav Free Zone, a small basin with shallow depths, is located immediately northwestward of the harbor. This zone includes the entire northwestern mole of the harbor but does not include the coal quay and coal store pier that form the northwestern part of this small basin. Between the coal store pier and the slaughterhouse quay, three-fourths of a mile westward, are three petroleum establishments with piers.

An oil pipeline, marked by buoys, extends about $\frac{1}{4}$ mile southward from the root of the middle oil pier.

A pier about $\frac{1}{2}$ mile long is $1\frac{1}{4}$ miles west-northwestward of the western head of the detached breakwater. Two mooring buoys are moored off the head of the pier.

An island pier, located about $1\frac{1}{2}$ miles westward of the western head of the detached breakwater, has a depth of 34 feet on its seaward side, and will accommodate tankers of up to 27,000 D.W.T.

A stranded wreck lies about 1,340 yards northwestward of the western extremity of the detached breakwater.

7-29 Depths.—The harbor, which will accommodate several large vessels, has general depths of 4 to 6 fathoms. Vessels not more than 600 feet long and with not more than a 30-foot draft may enter and berth alongside. From a position about three-fourths of a mile southwestward of the southeastern extremity of the detached breakwater depths of $3\frac{1}{4}$ to $5\frac{1}{4}$ fathoms extend about one-half of a mile northward. Shoaling was reported in 1944 in the vicinity of these depths.

Radiobeacon—Lights.—A light is shown from the southeastern end of the detached breakwater.

A light is shown from the western end of the detached breakwater.

Two red lights, vertically disposed, are shown from the western molehead.

A light is shown on the western pier.

Two red lights, vertically disposed, are shown on the southeastern corner of the pier,

about $\frac{3}{4}$ mile west-northwestward of White Tower. A light is shown from a radio tower on the northwestern corner of this pier. A light is shown from the Harbormaster Office Building, about 300 yards northeastward of the eastern extremity of the detached breakwater. A radiobeacon, from which a light is shown, stands about 1 mile southward of the White Tower. A light is shown from the head of a pier, about 200 yards southwestward of the radiobeacon.

Drainage pipe.—A drainage pipe, marked by a lighted buoy at its seaward end, extends 720 yards in a southwesterly direction from a position close southward of White Tower.

7-30 Anchorages.—Good anchorages for small vessels is available 500 yards westward of White Tower in a depth of 6 fathoms. Anchorage is possible anywhere toward the city and harbor of Thessaloniki, southward of the breakwater, and eastward of the lesser depths mentioned above. The depths in this whole area vary from $5\frac{1}{2}$ to 8 fathoms, soft mud. The holding ground is not good.

The safety offered at these anchorages is almost complete during the summer. Vessels are exposed, however, to southwesterly winds, which, blowing frequently during the winter, create in the area in front of the city a troublesome swell, often rendering impossible communication with the piers outside of the harbor. Sometimes northwesterly winds also blow violently in the entire bay, at times swooping down abruptly without any warning and even from a cloudless sky.

A foul anchorage area lies about 340 yards east-southeastward of the southeastern end of the detached breakwater.

Mooring buoys are moored about $\frac{1}{2}$ mile and $1\frac{1}{4}$ miles southeastward of the southern end of the detached breakwater.

Prohibited anchorage.—Anchorage is prohibited in Thessaloniki Bay for a distance of $\frac{1}{2}$ mile westward of a line extending from the slaughterhouse located on the north shore, in a 178° direction for about $2\frac{1}{4}$ miles, thence in a 199° direction for about 2 miles. Submarine telegraph cables are located in

this prohibited area. Anchorage is also prohibited within 200 feet of the drainage pipe.

7-31 Traffic signals.—Vessels entering or leaving the harbor, as well as the anchorage outside or inside of the harbor, are regulated by signals exhibited from two signal masts on the neau or the southeastern mole. Signals from the mast at the Port Captain's Office (southeastern corner of the mole) are directed to vessels entering or outside of the harbor; signals from the mast at the quarantine office (northwestern corner of the mole) are directed to vessels in the harbor.

A green flag by day, or a green light by night, at the mast of the Port Captain's Office permits the entry of vessels into the harbor. At the same time a red flag by day, or a red light by night, at the mast of the Quarantine Office prohibits the movement or departure of vessels in the harbor.

A red flag by day, or a red light at night, at the mast of the Port Captain's Office prohibits the entry of vessels into the harbor. At the same time a green flag by day, or a green light by night, at the mast of the Quarantine Office permits the departure of vessels from the harbor.

The following signals designate the place where vessels are to anchor or to berth:

Flag "N" by day, or 2 horizontal red lights by night; anchor eastward, outside of harbor.

Flag "O" by day, or 3 horizontal red lights by night; anchor westward, outside of harbor.

Flag "J" by day, or 2 horizontal white lights by night; tie stern cables to Greek Free Zone (main quay).

Flag "I" by day, or 3 horizontal white lights by night; put alongside at the Greek Free Zone.

Flag "Z" by day, or a white and a red light having a considerable horizontal distance between them at night; put alongside at the Yugoslav Free Zone.

One of the flags "A," "E," "F," "H," "R," raised separately on the mast of the Port Captain's Office, or 2, 3, 4, 5, and 6 horizontal lights near each other, alternating white and red, designate the berth alongside the

southeastern mole. In succession, they signify, respectively, at the head, outer side of mole (berth "A"), outer side of mole (berth "B"), inner side of mole (berth "A"), and inner side of mole (berth "B").

Tides.—The mean high-water interval at Thessaloniki is 3h. 56m. The mean range is 1 foot; the spring range, 1.4 feet.

7-32 Pilotage is compulsory for the harbor of Thessaloniki and the anchorage in its vicinity. Pilots board vessels about 1 mile south-southwestward of the White Tower. The pilot boat is a small power boat, painted brown, and displays the International Code flag "H" by day. No night signal is shown.

Currents.—When all the mouths of the Vardar River were along the northwestern shore of Saloniki Bay, strong currents were created during the outpourings of this river, caused by rain and melting snow. Attaining a velocity as great as $2\frac{1}{2}$ knots, these currents first set southward from Point Mikro Karaburnu, then southwestward along the southeastern shore, and finally southward through the entrance. Today, since the main bed and mouth of the Vardar River are outside of the gulf, these currents have lost some of their importance; nevertheless vessels passing through the entrance must take these currents under consideration and navigate with caution, keeping along the axis of the entrance and avoiding the shallows on either side, which are marked by light buoys.

7-33 Directions.—The only landmarks easy to identify from a distance in the Gulf of Saloniki are the mountains on its western side. The only other marks are the settlements, difficult to identify, and the points, which are low and bordered by shoal water. A naval vessel reported that Mt. Ossa to the westward and Mt. Athos to the eastward made good navigational cuts throughout the length of the Gulf of Saloniki. Mt. Olympus

did not present a definite distinguishable peak and was not very helpful. The highland of Cape Megalo Karaburnu is a good mark for recognizing the entrance to Saloniki Bay, and in this bay Point Mikro Karaburnu and the city are good marks. Navigation at night in the Gulf of Saloniki and Saloniki Bay is made easy under ordinary conditions of visibility by a complete network of lights on the most important points.

When entering Saloniki Bay through its narrow entrance bordered on either side by shoal water, pass close to the light buoy off Vardar Point before altering course to the northeastward; also pass close eastward of the light buoy off Avathi Naziki, after which one is free to set his own course. When leaving Saloniki Bay, remain on the side of the fairway marked by these two light buoys. It should be remembered, especially during a fog, that the light buoys may be set adrift by the currents, and consequently the recognition of only one of these buoys, on which to base the course through the entrance, should not be sufficient. Whenever in doubt, do not hesitate to anchor, because the depths for 5 miles southward of the entrance, as well as in Saloniki Bay, are suitable for anchoring.

7-34 Control of navigation in the Gulf of Saloniki is exercised by Greek naval authorities.

7-35 THESSALONIKI (SALONIKA) ($40^{\circ}38'N.$, $22^{\circ}56'E.$, *plan on H.O. Chart 4150*), the second largest city in Greece, had a population of 400,000 in 1961. A large part of the city is modern, having been rebuilt after a fire in 1917. The commercial and industrial activity of Thessaloniki is exceptionally great on account of the lively import and export commerce conducted from its harbor. Some of the inhabitants are engaged in the fishing industry.

Wharves.—The southeastern mole (East Mole) has depths of 23 feet along its head and 24 feet on its inner side. Vessels of a coasting line use the inner side of this mole. East Mole has one 14-ton crane and one 3-ton crane, and additional mobile cranes are available.

The main (Griswold) quay (Greek Free Zone), with a length of about 1,300 feet, has 23 to 26 feet alongside. Vessels are usually berthed alongside this quay. The quay is equipped with several cranes having lifting capacities of 2 to 5 tons. Five or six vessels can be moored stern-to off the quay.

The northwestern mole (West Mole) (Yugoslav Free Zone) has 950 feet of berthing space, with 20 to 26 feet alongside.

Lancashire Quay has berthing space of 787 feet on the eastern side, with depths of 26 to 31 feet; 750 feet on its western side, with 26 to 27 feet alongside; and 450 feet along its face, with 25 to 29 feet alongside.

"A" Quay extends westward from the root of Lancashire Quay. It has a berthing length of 550 feet, with 21 to 36 feet alongside.

The quay located southeastward of the harbor has depths of 3 to 23 feet.

The western petroleum pier (Shell Oil Jetty) has a depth of 21 feet at its head, and at the head of the eastern oil pier, a depth of 16 feet. Numerous mooring buoys are moored in the vicinity of these two piers. Tankers moor stern-to.

Esso Pappas Oil Pier consists of a detached breasting pier, in the northwestern section of the harbor, with a depth of 31 1/2 feet on its seaward side.

The southeastern mole, the main quay, and the northwestern mole have warehouse and railroad facilities. Lighters and cranes are available for handling cargo. Vessels can also be berthed at the inner side of the detached breakwater. One floating crane of 60 tons capacity is available.

Repairs.—Machine shops are available for minor repairs. In case of necessity the shops of the railroad might be able to effect large repairs.

Tugs are available and salvage tugs are available from Piraeus. Small work boats also act as salvage vessels in emergencies.

Supplies.—Fuel oil and diesel oil are available in small quantities. Only a few thousand tons of coal is kept in stock. Coaling is performed from lighters.

Provisions are available in small quantities. Engineers supplies in limited quantity, and deck supplies in moderate quantity are available. The harbor is equipped with hydrants, and water barges are available.

Communications.—Numerous steamship lines make Thessaloniki a port of call. After Athens, it is the most important station on the Greek railroad system, and has connections with the railroad systems of the Balkans, Central Europe, and Western Europe. Besides having regular air service with Athens, it is an intermediary stop for several air lines connecting Europe with Africa and Asia. Telegraphic communication is possible with all parts of the world.

Radio.—Thessaloniki has a radio station open to public correspondence.

Time signal.—A gun is fired at the White Tower at noon, standard time, corresponding to 10 h., 00 m., 00 s., Greenwich civil time.

Hospitals.—Thessaloniki has several hospitals.

Quarantine.—All vessels arriving at Thessaloniki must display at the foremast flag "Q" of the International Code of signals, and if not subject to exceptional quarantine measures, they may enter the harbor. The master will then land with the bill of health, after which pratique will be granted and the quarantine flag hauled down.

Should it, however, be necessary for a medical examination of the passengers, the master will not land and the vessel will be visited by a quarantine officer, and if found subject to quarantine no one is allowed to land and the vessel proceeds to the quarantine station.

The officials of the quarantine department must be provided with a certified copy of the manifest before a vessel is permitted to discharge cargo.

The medical examination is only held between sunrise and sunset except in winter, when the time is extended to 7:00 p. m.

Deratization can be carried out. Deratization certificates and deratization exemption certificates are issued.

Meteorological table.—See appendix II.

7-36 KHALKIDIKE (KHALKIDHIKI) PENINSULA (*H. O. Chart 3968*), forming an irregular extension of the middle part of Macedonia, is located along the northwestern part of the northern Aegean Sea. Extending southward from its narrow northern part between the Gulf of Saloniki on the west and the Gulf of Rendina on the east, the peninsula terminates in three smaller and conspicuous peninsulas, which, with relatively small width, proceed parallel to each other for more than 25 miles in a southeasterly direction, and form between them the Gulf of Kassandra and the Gulf of Hagion Oros. The entire surface of Khalkidike Peninsula is mountainous. There are only a few dangers and islets along the coast, and the depths near the coast are great for the most part. At the same time the coast forms only a few bays and anchorages. Small towns and villages are found near the sea, and many of these described

in the text are not charted, having been recently built with the rehabilitation of refugees from Asia Minor.

Kassandra (Pallini) Peninsula is the western one of the above-mentioned three peninsulas formed at the southern part of Khalkidike Peninsula, with which it is connected by the Isthmus of Potidea, a narrow neck of land cut by the Nea Potidhaia Canal. Forming the eastern shore of the outer part of the Gulf of Saloniki and the southwestern shore of the Gulf of Kassandra, the peninsula first trends 17 miles in a south-southeasterly direction and then the same distance in an east-southeasterly direction. The maximum width is 8 miles. The fertile surface is covered with high hills for the most part, and the highest peak (1,158 feet) is located within the middle part of the southern coast.

Longos (Sithonia) Peninsula is the middle one of the three smaller peninsulas extending from the southern part of Khalkidike Peninsula, with which it is connected by a narrow neck of land, but farther southward its greatest width reaches 9 miles. Trending 25 miles in a southeasterly direction, this peninsula separates the Gulf of Kassandra on the west from the Gulf of Hagion Oros on the east. The whole peninsula is mountainous, the highest peak (2,651 feet) being near the middle.

Hagion Oros (Akti) (Athos) (Monte Santo) Peninsula, the eastern one of the three peninsulas at the southern end of Khalkidike Peninsula, to which it is connected by the narrow Isthmus of Xerxes, trends first 15 miles in an east-southeasterly direction and then the same distance in a south-southeasterly direction. Its width varies between 2 and 4 miles. The mountainous surface, covered entirely by vegetation, attains its maximum elevation in Mt. Athos (6,670 feet), located at the southern end of the peninsula.

The Holy Community of Mt. Athos, which takes in the middle and southern parts of Hagion Oros Peninsula, enjoys autonomy under the Greek Government. There are twenty principal monasteries, and to these are attached numerous monastic settlements of various grades. The seat of government is at Kariaes (Kariai).

Agriculture and mining are the principal industries on Khalkidike Peninsula. Some of the inhabitants are engaged in fishing. A local steamship company maintaining a weekly schedule between Thessaloniki and Ierissos serves the principal towns along the coast of the peninsula.

7-37 SOUTHERN SIDE OF KASSANDRA (PALLINI) PENINSULA—COAST.—This side of the peninsula is of little interest. At a short distance inland the land rises abruptly, and 7 miles eastward of Kassandra Point (sec. 7-16) rises Trambala, 1,158 feet high, the highest peak on the peninsula. The slight bight formed immediately eastward of Kassandra Point ends about 11 1/2 miles farther eastward in Kanastri (Skioni) Point, beyond which the coast, precipitous, craggy, and backed by cultivated hills, trends 6 1/4 miles eastward and terminates in Cape Paliuri.

The village of Kassandra is located 2 miles eastward of Kassandra Point, and 8 miles eastward of the same point is another small settlement. Along Kanastri Point is the village of Nea Skioni, a place of call for coasting vessels.

Cape Paliuri (Paliouri) (Kanastraion) is the southeastern limit of Kassandra Peninsula. It is considered as the southeastern outer limit of the Gulf of Saloniki and constitutes likewise the western entrance point of the Gulf of Kassandra. The cape is low.

A light is exhibited from an iron beacon, 20 feet high, on Cape Paliuri.

7-38 GULF OF KASSANDRA (TORONAIOS KOLPOS).—This gulf, having an elliptical shape, trends 29 miles in a northwesterly direction between Kassandra Peninsula on the west and Longos Peninsula on the east. The gulf contracts to a width of 5 1/2 miles at a short distance within the entrance, where it is 8 miles wide, but then it again widens out to maximum distance of 13 miles. The depths are great up to the shores, along which in places are some dangers. With the exception of a small peninsula on the eastern side, the shores of the gulf are fairly straight. Only one large island is located in the gulf, but scattered along the eastern shore are some islets. A dangerous off-lying reef lies south-southwestward of one of these islets. Port Kupho, located at a short distance within the eastern entrance point, affords the only safe anchorage worthy of note in the entire gulf.

Currents.—During the fall a westerly current with a velocity of one-half of a knot has been observed southward of the entrance to the Gulf of Kassandra. During light east-southeasterly winds in this season the current has also been observed to set northwestward with a velocity greater than 1 knot.

7-39 The coast from Cape Paliuri, the western entrance point of the Gulf of Kassandra, trends nearly 1 1/2 miles northward to Cape Nikolo (Ayios Nikolaos). Between Cape Nikolo and a point 3 miles northwestward the coast trends westward and then northward to form Skioni (Karavi) (Ayios Nikolaos) Bay, where the depths are too great for anchoring. Along this bay are some small churches.

7-40 Kannavitsa (Paliouri) Bay, located between the northwestern limit of Skioni Bay and Kannavitsa (Karavi) Point, about one-half of a mile northward, recedes about 600 yards in a westerly direction. Depths

of less than 3 fathoms extend only 150 yards from its shores, while the depth in the middle of the entrance reaches 27 fathoms. This bay, a port of call for vessels of a coasting line, has a resin factory with a pier, a crane, and some lighters. The village of Paliouri (720 inhabitants) is located a short distance inland.

7-41 Glareta (Klareton) (Glarokavos) Point is located 1 mile north-northwestward of Kannavitsa Bay, and between this point and Cape Agios Paulo, 14 1/2 miles north-westward, the shore of the gulf recedes slightly to the southwestward. Between Glareta Point and a position 5 miles west-northwestward of it the shore has depths of less than 3 fathoms extending offshore as far as 650 yards. Kapso hora (Kapsokhora) (350 inhabitants), a place of call for coasting vessels, is located 2 miles west-northwestward of Glareta Point. Near this village are several other small settlements, named Ano Tsaprani, Ano Keramidhi, and Khanioti. About 4 miles west-northwestward of Kapso hora is Polecrono (Metokhion Polikhronou), a monastic community of 300 inhabitants. About 3 miles north-westward of this monastic community is Melteses, a small settlement and harbor for the inland village of Pazarakia (250 inhabitants), located on an elevation.

7-42 Cape Sulena (Soulina), located 3 1/2 miles north-northwestward of Melteses, is a small sandy point with shallows and sunken rocks extending a considerable distance seaward from it. On an elevation 1 mile southward of the point is the small settlement of Rousiko, and a short distance within the point is the village of Atheto (Athitos), with 700 inhabitants. On either side of this village stands a conspicuous windmill.

Cape Agios Paulo (Ayios Pavlos) is located 2 1/2 miles northwestward of Cape Sulena, the intervening coast between them

being rocky. Immediately southward of the cape is a small and shallow bay open to the northeast. A conspicuous tower stands near the bay, and the village of Nea Fokaia (700 inhabitants) on the northern side of the bay has a conspicuous school.

Northward of Cape Agios Paulo the coast recedes to the westward to form a bay along the narrowest part of Kassandra Peninsula. Between the cape and Nea Potidhaia Canal (sec. 7-19) the shore of the bay is bordered by depths of less than 3 fathoms extending offshore for a distance of 500 yards. Two stone jetties form the eastern entrance to the canal, and the depths for 200 yards off these jetties are under 3 fathoms. Northward of the canal the low and sandy shore of Khalkidike Peninsula trends north-northeastward to form the head of the Gulf of Kassandra.

A target, with a fixed red light, is moored about 2 miles northeastward of the eastern entrance of Nea Potidhaia Canal.

7-43 Gerakini Skala (Skala Yerakinis) (40°16' N., 23°28' E.), about 6 1/2 miles north-eastward of Nea Potidhaia Canal, is a loading place for magnesite and a port of call for coasting vessels. A short distance inland is the village of Gerakini (Yerakini), with 500 inhabitants, a post office, and a customhouse; farther inland is the town of Poliyiros, with 2,500 inhabitants. Provisions are procurable. Gerakini Skala has a wooden pier with a length of 260 feet and a depth of 9 to 12 feet at its head. Magnesite is loaded onto lighters from this pier, close eastward of which is a smaller wooden pier. About 1 mile westward of Gerakini Skala is the small bay of Molivopirgos, with a conspicuous white house and an ancient mole partly in ruins.

A dangerous shoal of weeds, sand, and rocks lies about 425 yards south-southeastward of the head of the large wooden pier.

This shoal extends 500 yards in a northwest and southeast direction and has a least depth of 1 1/4 fathoms.

A light is exhibited from an iron beacon located close westward of the root of the larger wooden pier.

Anchorage.—Only during August to November are conditions unfavorable for anchoring off Gerakini Skala. Vessels must avoid anchoring eastward of the large pier on account of the above-mentioned shoal. Great caution is necessary in selecting a berth on account of the abrupt change in depths toward the shore. Depths of 9 to 10 fathoms, sand and stones, exist 600 to 800 yards south-southwestward of the large wooden pier.

Foul ground lies about 520 yards south-southwestward of the light close westward of the head of the larger wooden pier.

Pilotage is compulsory for the area in front of Gerakini Skala.

7-44 Coast.—About 4 miles east-southeastward of Gerakini Skala is a small settlement with a small wharf, and the depths are great at a distance of one-half of a mile off the intervening coast. This settlement is the landing place for the inland town of Ormelia (Ormilia), located to the northeastward. Close southeastward of the settlement is the mouth of the Palaioiania (Langomana) River, and a short distance up the valley of this river is the monastic settlement of Vatopedhion.

Sargani Point is located about 2 miles east-southeastward of the mouth of the Palaioiania River. For about 3 miles on either side of this point shallows and rocks extend offshore for a distance of 500 yards.

A bight receding to the northeastward is formed between Sargani Point and Cape Kastro, 5 miles east-southeastward. At the head of this bight are a few houses, the landing place for the inland town of Niketas (Nikitas), and a monastic settlement is

located on the northern shore of the bight. Good anchorage, sheltered from northerly winds, may be obtained at the head of the bight; soundings should be taken and the anchor dropped in 10 fathoms, as the depths shoal rapidly toward the shore. Vessels of a coasting line call, and provisions are available.

Cape Kastro, the southeastern limit of the above-mentioned bight, has near it the small rocky islet of Kastro. Rocks extend 200 yards in all directions from this islet.

7-45 Off-lying danger—Caution.—A reef with a depth of less than 6 feet lies $1\frac{1}{4}$ miles south-southwestward of Kastro Islet. Vessels should avoid the vicinity of this reef and the islet, because the chart is inaccurate, the soundings being considerably less than charted.

Coast.—Cape Eleia (Elia) is located $3\frac{1}{2}$ miles southeastward of Cape Kastro, and the coast between them forms a bight with considerable depths. On the cape are some houses, and one-half of a mile northward of it stands a conspicuous two-storied building. After Cape Eleia the coast trends $2\frac{1}{2}$ miles southeastward, and midway along this stretch is a river with a small settlement (Tripotamon) near it. Then the coast trends 1 mile southward to Neos Marmaras Point, and at the bend of the coast are the houses of the landing place for the inland village of Parthane (Parthenon) (400 inhabitants).

Neos Marmaras Bay is formed between Neos Marmaras Point on the north and a sandy tongue of land on the south. The inner part of this small bay is attacked only by southerly and southwesterly winds. A light is exhibited from an iron beacon, 20 feet high, on Neos Marmaras Point. At the head of this bay is a village (450 inhabitants) of the same name. The school building at the southern end of the village is

conspicuous. Local coasters call, and water in small quantities and provisions are available.

Small vessels can obtain anchorage in $4\frac{1}{4}$ fathoms about 400 yards eastward of the light structure; also about 200 yards southwestward of a small pier in front of the village. The depths southward of the light are 13 fathoms.

7-46 Kelpo (Kelifos) Island ($40^{\circ}03' N.$, $23^{\circ}43' E.$, *H. O. Chart 3968*) lies $2\frac{1}{2}$ miles southwestward of Neos Marmaras Point. The depths in the passage eastward of it are considerable. Some sunken rocks lie close off this island, especially off its western side.

Coast.—Cape Papadia (Papavea) (Papadhia), the southern extremity of the only large promontory on the eastern side of the gulf, is located $5\frac{1}{2}$ miles south-southeastward of Neos Marmaras Point, and along the whole intervening coast are numerous small promontories with coves between them. Rocks also lie a short distance off this part of the coast, but farther off the depths are considerable. Spalathro (Sphalathra) Islets (Spalathronisia), a group of three small rocky islets, lie not far off the coast in a position $1\frac{1}{4}$ miles northward of Cape Papadia. A light is shown on the most southern point of Spalathro Islets.

Toronis Bay is formed immediately eastward of the promontory terminating in Cape Papadia. Receding 1 mile in a northerly direction, this bay decreases in width from the $1\frac{1}{2}$ miles at the entrance to the small harbor for boats at its head. Southeastward of the small boat harbor are some houses and a ruined ancient fort. Farther southward are some ancient ruins with some houses near them.

7-47 Port Kupho (Koufos) ($39^{\circ}57' N.$, $23^{\circ}56' E.$, *plan on H. O. Chart 4151*), a small port on the eastern side of the en-

trance to the Gulf of Kassandra, is entered $1\frac{1}{2}$ miles north-northwestward of Cape Ambelon, the eastern entrance point of the gulf. The port extends first east-northeastward one-half of a mile and then north-northwestward about the same distance to Guras Bay at its head, where it is about 300 yards wide. The depths decrease gradually from 35 fathoms at the entrance to 5 fathoms in Guras Bay, sand and weed bottom, with occasional patches of mud. The entrance is between high bold land on either side, and 300 yards west-northwestward from the western entrance point is situated the islet of Praso (Peristeronisi), surrounded by rocks above and below water; the passage between the islet and the mainland is foul.

Immediately northeastward of Drestinaka (Dhrestinaga) Point, the western entrance point, is Korakos (Korakas) Bay, which recedes northwestward for a distance of 400 yards. From Antikufos (Andikoufos) Point, the eastern limit of Korakos Bay, the shore trends east-northeast about 250 yards to Spilia Point; thence the port trends north-northwestward. Spilia Point is foul for 50 yards; foul ground extends about 400 yards northward from the vicinity of Spilia Point. A point on the opposite shore about 600 yards eastward of Spilia Point is foul to a distance of 175 yards. There is nothing in the way of entering this little port but the shoals just mentioned, and its northern part is landlocked. The high cone of Mount Athos, bearing 057° , seen over the lower land of the Longos Peninsula, leads to the entrance. A one-storied whitewashed house (ruin of a barrack) standing on the eastern side of the bay is seen as a white square spot for a considerable distance, and when bearing 063° it leads to the entrance.

Port Kuphos is much used by local small craft as a shelter from all winds. The hold-

ing ground of mud, sand, and weeds is moderately good on the whole. Guras Bay is the recommended place for anchorage.

The settlement of Kupho (Koufos) is located at the northeastern part of Guras Bay, and consists of only several houses. There are four wells in the vicinity, but the water is not good. There are landing places on either side of Guras Bay.

Lights.—A light is exhibited from an iron column on a hut standing on Spilia Point.

A light is exhibited from a similar structure on Pagona Point, the southern entrance point of Port Kupho.

7-48 Cape Ambelon (Ambelos) (Dhrep-aron) ($39^\circ 56' N.$, $23^\circ 55' E.$, *H. O. Chart 3968*), the eastern entrance point of the Gulf of Kassandra, as well as the southwestern extremity of Longos Peninsula, projects in a southwesterly direction and is fringed by sunken rocks. It has been reported that Cape Ambelon is a good radar target with an echo range of 10 miles under normal conditions.

The precipitous coast, within which rises a hill to a height of 918 feet, trends 1 mile eastward from Cape Ambelon to a bay, open southward, where the depths are too great for anchoring. From Cape Derris (Dhreis), the eastern entrance point of this bay, the coast trends $1\frac{1}{2}$ miles northeastward to Cape Pseudikavos, the southwestern entrance point of the Gulf of Hagion Oros, and midway along this stretch of the coast is a small unnamed point.

A light is shown on Cape Pseudikavos.

7-49 GULF OF HAGION OROS (MONTE SANTO), also known as Kolpos Singitikos, is very similar to the Gulf of Kassandra but wider at its entrance. Having a width of over 13 miles in its outer part, the gulf trends first northward and then northwest-

ward for a total distance of 26 miles. The depths are considerable, and there are no off-lying dangers. Safe anchorage is found leeward of the two islands in this gulf, and Port Sikia, located on the western side of the entrance, also affords safe anchorage.

Coast (H. O. Chart 3968).—Cape Pseudokavos (Psevdhokavos), the southwestern entrance point of the gulf, is precipitous, and has rocks and shoals extending 650 yards from it. Kartali Point, 1 mile northward of the cape, is also precipitous, and the cove formed between them has depths too great for anchoring. The southern half of the coast between Kartali Point and Port Sikia, $3\frac{3}{4}$ miles northward, is indented by four small coves, and a sunken rock lies close eastward of the northern entrance point to the southernmost one.

Skepe Reef lies as far as 500 yards from the coast close southward of Adolo Point, the southern entrance point of Port Sikia. A rocky islet with rocks above water near it lies on the northern part of this reef, the southern part of which is separated from the shore by depths of 10 to 7 fathoms. This part of the coast should be given a berth of one-half of a mile or more. The light on Adolo Point (sec. 7—50) is obscured over Skepe Reef when bearing more than 291° .

7-50 Port Sikia (Limn Sikias) ($40^{\circ}03' N.$, $24^{\circ}01' E.$,

about 1 mile wide in its entrance between Adolo (Adholo) Point on the south and Cape Sikia on the north, recedes $1\frac{1}{2}$ miles in a westerly direction. The depths decrease from 20 fathoms in the entrance to 10 and 5 fathoms at a short distance off the low land at the head. The southern shore is indented by two small coves with hills between them; the eastern cove is rather shallow.

Apastro, a small rocky islet, lies close southwestward of Cape Sikia, which is foul to a short distance. Rocks above water ex-

tend 200 yards southward from this islet. Sikia Shoal, a rocky $1\frac{1}{2}$ -fathom patch, lies 800 yards southeastward of Cape Sikia, from which, as well as Apastro Islet, it is separated by depths of 15 to 12 fathoms.

The usual anchorage is in the southwestern part of the port. During northerly winds in the winter the preferable anchorage is off the northern shore. Winds from northeast to east-southeast cause only a slight swell in the interior of the port.

Port Sikia is a port of call for vessels of a coasting line. Besides a few houses at the port, the town of Sikia (1,600 inhabitants) is located a short distance in the interior. Numerous wells are found along the shores of this port.

A light is exhibited from an iron column and hut, 19 feet high, on Adolo Point.

7-51 Coast (H. O. Chart 3968).—Rikha (Rigas) Point is located 3 miles northward of Port Sikia, and the intervening coast recedes to form Rikha (Sartis) Bay. In this bay about 1 mile south-southwestward of Rikha Point and one-half of a mile offshore lies a dangerous rock with less than 6 feet of water over it. In the southern part of the bay lies a small rocky islet with sunken rocks close southward of it. Nea Afisia, a settlement of 400 inhabitants along the northern part of the bay, is a calling place for coasters.

The precipitous coast from Rikha Point trends 2 miles north-northwestward to Suli (Shoal) (Ifalos) Point; thence it trends 8 miles northwestward to Port Dimitri. As Suli Point and Drakos (Trako) (Armenistis) Point, $3\frac{1}{4}$ miles northwestward, are foul to a considerable distance, vessels should give this part of the coast a berth of one-half of a mile. Southwest of Drakos Point the peninsula attains a height of 2,651 feet in Mt. Dragdelis (Longos), and westward of the same point rises Oros Karuno (Karvouno), 1,962 feet high.

7-52 Port Dimitri (Ormos Dhimitris) ($40^{\circ} 12' N.$, $23^{\circ} 47' E.$) is the name given to the channel separating Dimitri (Dhiaporos) Island from the mainland to the west, and the continuation of this channel between the southern end of the island and the mainland to the south is called Mesopanayia Bay. Dimitri Island extends nearly 2 miles in a north and south direction, has an average width of three-fourths of a mile, and attains a height of 130 feet in its northern part. The low areas of the island are under cultivation. In the vicinity of the island are several islets, rocks, and reefs, which constitute serious dangers for vessels unfamiliar with the geographical conformation of the island.

Dangerous shoals and rocks above and below water extend 500 yards northward from the point of the mainland opposite the southeastern point of Dimitri Island. A small group of islets lie at the northern end of this foul ground, which is impassable even for boats. A rock above water with shoal water extending a short distance southeastward from it lies off the southeastern point of Dimitri Island. The fairway of the eastern entrance to Mesopanayia Bay is between this shoal water and the westernmost islet of the group on the foul ground extending northward from the mainland. Being about 300 yards wide, this fairway trends south-southwestward and has its greatest depth of $5\frac{1}{2}$ fathoms along its axis.

Prasonisi, a small rocky islet, lies 1,400 yards northward of the southeast point of Dimitri Island and 800 yards offshore. An uncharted $2\frac{1}{2}$ -fathom patch, rock, lies 300 yards north-northwestward of this islet. Ayios Isidhoros, a rocky islet with ruins on it, lies close off the northern part of the eastern coast of Dimitri Island. The cove it shelters to the westward has depths of $4\frac{1}{4}$

to $2\frac{3}{4}$ fathoms, but as shoals extend 300 yards northward from the southern entrance point, vessels must pass within 100 yards southward of Ayios Isidhoros.

Ambelitsi and Peristeri are two rocky islets lying westward of the northern extremity of Dimitri Island. The northern entrance to Port Dimitri is between these islets, but a large rock, above water, lies close eastward of Peristeri, the western one. The passage westward of Peristeri should not be attempted, as it is foul. A light is shown on Peristeri.

Port Dimitri has depths of 22 fathoms in its northern part and 16 to 11 fathoms in its southern part. The best anchorage is in the cove just northward of the southwestern point of Dimitri Island, where the depths are from 11 to $5\frac{1}{2}$ fathoms. A dangerous uncharted rock, awash, lies 400 yards east-southeastward of the northern entrance point of the cove indenting the mainland shore. To avoid this rock, vessels must remain eastward of the axis of the bay.

7-53 Mesopanayia Bay has depths less than those in Dimitri Bay. Good anchorage may be obtained at the entrance to the small cove indenting the western part of the southern side of Dimitri Island. An uncharted $2\frac{1}{2}$ -fathom rocky patch lies 500 yards southward of the eastern limit of this small cove and 300 yards southward of its western limit lies another uncharted $2\frac{3}{4}$ -fathom rocky patch, which constitutes a danger for large vessels using the passage between Mesopanayia Bay and Port Dimitri.

Coast.—Dimitraki (Dhimitrakai) Bay is formed between two promontories of the mainland immediately westward of the northern entrance to Port Dimitri. From its entrance, in which lies a small rocky islet, the bay recedes 1,200 yards in a southerly direction and has depths of 8 to 11 fathoms in its central part. The fairway eastward of the small rocky islet is the recom-

mended one; it is narrower than the fairway westward of the islet but deeper.

7-54 Ayios Nikolaos Bay ($40^{\circ}14' N.$, $23^{\circ}44' E.$, *H. O. Chart 3968*), entered $1\frac{1}{2}$ miles westward of the northern entrance to Port Dimitri, recedes about one-half of a mile in a southwesterly direction, and has depths of 11 to $5\frac{1}{2}$ fathoms in its central part. The eastern part of the entrance is clear of dangers.

Good anchorage at all times is available in Ayios Nikolaos Bay, which is a port of call for coasting vessels. A small settlement, southward of which is a flour mill, is located on the western side of the bay. Water may be obtained from wells, and provisions are procurable from the town of Ayios Nikolaos (1,500 inhabitants), located a short distance in the interior. This latter place has a post office and telephonic communication with Thessaloniki.

The coast northward of Ayios Nikolaos Bay forms the western side of the head of the Gulf of Hagion Oros and is of little interest. Shoals extend a considerable distance from it immediately northward of the bay and in two other places farther northward.

The northern shore of the head of the gulf forms near its middle Cape Mavros (Arkoudha), a wide projecting point rising to a height of 617 feet within its precipitous sides, close off which are considerable depths. The large bay formed westward of the cape has considerable depths and within its shores are hills. On the western entrance point of this bay is the village of Hagios Dimitrios (Ayios Dhimitrios), where coasting vessels stop. The bay between Cape Mavros and Spratt Point, 5 miles east-northeastward, has considerable depths and sunken rocks near its shores. A small promontory projects from the shore of the middle part of this bay. On Spratt Point is the village of Xiropotamos, a stopping place for coasting vessels and a landing place for settlements in the interior.

7-55 Trygona Bay (Ormos Provlakas)

($40^{\circ}21' N.$, $23^{\circ}54' E.$, *H. O. Chart 4230*), located immediately eastward of Spratt Point and sheltered from the south by Ammuliani Island, is formed along the southern side of the narrowest part of the Isthmus of Xerxes, where there are still vestiges of the ancient Xerxes Canal. Depths of less than 3 fathoms, followed immediately by depths greater than 10 fathoms, extend 200 yards or more from the shore. Vessels should anchor within 600 yards of the shore, where the depths are from 25 to 20 fathoms, sand, good holding ground.

7-56 Ammuliani (Ammouliani) Island is located in the northeastern part of the head of the Gulf of Hagion Oros. Extending 3 miles in a northwesterly and southeasterly direction, the island has a maximum width of $1\frac{3}{4}$ miles in its northern part and tapers gradually toward its southeastern point. Great depths free of dangers exist along the southwestern side of the island, but two rocky islets (Xiropotamina) and shoal water extend as far as 600 yards northward from the western half of the northern side. A small cove indents the eastern side about 600 yards southward of the northern extremity of the island. Depths of less than 5 fathoms extend 200 yards from its shore, along which is the village of Ammuliani (400 inhabitants). Coasting vessels call.

The western part of the passage between the southeastern extremity of Ammuliani Island and Pyrgo Point of the mainland, $1\frac{1}{2}$ miles east-northeastward, is encumbered by the rocky islets of Dhrenia. A rocky 2-fathom patch lies 800 yards eastward of the northeasternmost islet, and depths of 2 fathoms extend east-northeastward and merge with the shoal water southward of Pyrgo Point. A channel with a least depth of $3\frac{3}{4}$ fathoms is close eastward of this islet and affords a southeastern approach for small craft entering Trygona Bay.

A light is shown on the northeasternmost islet of the Dhrenia group.

In the area of deep water northward of the Dhrenia Islets in a position about 800 yards

west-northwestward of the northeasternmost islet lies Cygnet Rock, on which the depth is $3/4$ fathom. A rock, dangerous to navigation, lies about 1,825 yards 081° from Cygnet Rock.

Shoals.—Several shoals with depths of 2 fathoms exist in an area extending from $1/2$ to 1 mile eastward and southeastward of the center of Cygnet Rock.

7-57 Coast.—Pyrgo (Pirgos) Point, the northwest limit of the Holy Community of Mt. Athos, has standing on it a medieval fortress, used today as a factory. Depths of less than 3 fathoms extend about 650 yards westward and depths of 2 fathoms and less extend about one-half of a mile southwestward from the point.

Neon Prosforion, a farming settlement of 300 inhabitants, is located near Pyrgo Point. Coasting vessels call.

The coast (*H. O. Chart 3968*) from Pyrgo Point trends $31\frac{1}{2}$ miles southeastward, thence 5 miles eastward, and finally 12 miles southeastward to Cape Avlaki, the southwestern extremity of Hagion Oros Peninsula. In places shoals or sunken rocks extend offshore a short distance. Monasteries and monastic communities, which are too numerous to describe in detail, are visible along this part of the coast. Many of them have landing places with wharves, which only boats can use.

7-58 Dafni (Dhafni) Bay, located about 7 miles northwestward of Cape Avlaki, is the commercial harbor for Kariaes (Kariai), the capital of the Holy Community of Mt. Athos.

The depths off Dafni Bay are great and unsuitable for anchorage. A mooring buoy, suitable for vessels up to 500 tons, is moored in the harbor.

The small settlement of Dafni is the quarantine station for visitors and pilgrims to the monasteries of the peninsula. Telegraph and telephone facilities are available.

A light is shown about $1/2$ mile northwestward of Dafni.

7-59 Cape Avlaki (Kapso) (Pinnes), the southwestern point of Hagion Oros Peninsula, is also the northeastern entrance point of the Gulf of Hagion Oros.

Cape Laura (Akrathos), located $4\frac{1}{2}$ miles east-northeastward of Cape Avlaki, is the southeastern point of Hagion Oros Peninsula. Inland of these two points rises Mt. Athos, 6,670 feet high. Navigation along the coast between these two points is sometimes dangerous for small vessels, as violent squalls descend from Mt. Athos. Several small islets lie close off this coast, but otherwise the depths are considerable.

Lights.—A light is shown on Cape Avlaki. Another light is shown on Cape Laura.

7-60 EASTERN SIDE OF HAGION OROS PENINSULA—Coast (*H. O. Chart 3968*).—Considerable depths exist along the entire eastern coast of Hagion Oros Peninsula from Cape Laura to Cape Plati, 26 miles northwestward. Monasteries and monastic communities, too numerous to describe in detail, are located on this side of the peninsula. Many of them have landing places available for boats.

Anchorage.—Anchorage is available off Iveron Monastery (Moni Iviron), located 8 miles northwestward of Cape Laura. Large vessels can anchor in a depth of 9 fathoms, sand, with the conspicuous tower of the monastery bearing 223° , while smaller vessels can anchor in a depth of 5 fathoms with the tower bearing 231° . Soundings should be taken when approaching the anchorage,

and vessels must leave at the first sign of easterly winds.

Anchorage is available in a depth of 12 fathoms off Vatopedion Monastery (Moni Valopedhion), located $4\frac{3}{4}$ miles northwestward of Iveron Monastery. As the depths shoal abruptly and are suitable for anchorage at a short distance offshore, vessels must approach slowly and sound constantly.

7-61 IERISSOS BAY (KOLPOS IERIS-SOU) (entrance, $40^{\circ}29' N.$, $23^{\circ}56' E.$, *H. O. Chart 4230*) is formed along the northern side of the narrow part of Hagion Oros Peninsula. Having a width of 6 miles in its entrance between Cape Plati on the southeast and Cape Eleuthera on the northwest, the bay widens out to a width of 10 miles and recedes 6 miles in all directions from its entrance. The depths are considerable, but become less than 20 fathoms within one-half of a mile of the shore, near which are only a few dangers. Plati Harbor is the only anchorage protected against all weather, but anchorage is possible off the inhabited centers, because the whole bay is sufficiently sheltered from bad weather conditions outside of it. Strong disturbances of the sea sometimes enter the bay and interrupt loading at Stratoni.

7-62 Cape Plati (Arapis), the southern entrance point of the bay, is the northern extremity of a narrow and high promontory extending 4 miles northward from Hagion Oros Peninsula and forming the eastern shore of Ierissos Bay. Close off Cape Plati lie the two small rocky islets of Stiliaria, without dangers in their vicinity.

Cape Plati Light is exhibited from an iron column and hut, 19 feet high, on the summit of the northern islet off Cape Plati.

7-63 Plati Harbor (plan on *H. O. Chart 4230*), a small cove on the eastern side of Ierissos Bay, is entered 1 mile southward of

Cape Plati. Having a width of 600 yards in its entrance, this harbor recedes the same distance to the eastward and has depths of 8 to 4 fathoms. Depths of less than 3 fathoms extend offshore as far as 100 yards in places. A conspicuous conical rock, 18 feet high, stands on the eastern shore, and on the northern shore is seen a conspicuous white rock, 25 feet high. Although the bottom of sand, mud, shells, and stones is not considered good holding ground, Plati Harbor is an excellent port of refuge.

Shoals.—A $3\frac{1}{4}$ -fathom patch is located in the middle of Plati Harbor in a position 320 yards 005° from the southern entrance point. A $1\frac{3}{4}$ -fathom patch and a $2\frac{1}{4}$ -fathom patch lie respectively 276° and 150° yards 264° from the southern entrance point.

A rock awash is located about 100 yards off the southern entrance point to Plati Harbor.

7-64 Coast (*H. O. Chart 4230*).—The eastern shore of Ierissos Bay to the south of Plati Harbor is of little interest. Several small rocky islets rise from the considerable depths bordering this shore. The small cove of Ayios Evthimios, located $1\frac{2}{3}$ miles southward of Plati Harbor, is a loading place for wood and charcoal; several houses are located here.

Ropalon (Kritir) Point is a projecting point to the west of the southeastern part of Ierissos Bay. Rocks under water extend 275 yards northward from the shore 1,600 yards east-southeastward of Ropalon Point.

Nea Rodha (300 inhabitants) is located $1\frac{1}{2}$ miles westward of Ropalon Point. Near this village are traces of the northern entrance to the ancient Xerxes Canal. The settlement has a flour mill, a post office, and a wharf.

7-65 Ierissos is located 2 miles west-northwestward of Nea Rodha. The town is built on level land near three small hills, which were the site of the old town, destroyed in 1931. Southeastward of the town

stands a conspicuous fortress in ruins, and rocks extend 200 yards northward from the shore in a position northwestward of this fortress and also the same distance from Ammos (Kiparisi) Point, located northeastward of the fortress.

The depths fronting Ierissos are less than 3 fathoms as far as 200 yards offshore and less than 10 fathoms as far as 500 yards offshore. Good anchorage may be obtained 800 yards offshore in a depth of 15 fathoms, sand, but any other berth in a suitable depth may be selected by sounding. Anchorage becomes impossible only during northerly winds, when vessels seek shelter at Plati Harbor.

A breakwater has been built here extending 360 feet northeastward, and then 180 feet northwestward from the coast; in 1963, however, it was reported that it was breaking up and part of its head was 2 feet underwater.

7-66 The town of Ierissos has about 2,900 inhabitants. The fertile region around this town produces grain, and cattle are raised. Timber is the chief export; water is available. The town has custom, telephonic, and telegraphic facilities. Ierissos is the terminus of a coasting line serving Khalkidike Peninsula.

7-67 Coast—Danger.—On the western side of Ierissos Bay, opposite the entrance and $2\frac{1}{2}$ miles northwestward of the town of Ierissos, is Mison (Klisouri) Point, a conspicuous bulky promontory rising to a height of 289 feet. Charcoal is shipped from the northern side of this point.

Vriscas Bank (Vriska Reef), on which the depth is 6 feet, lies $1\frac{3}{4}$ miles north-northwestward of the outer extremity of Mison Point and one-half of a mile offshore.

7-68 Stratoní Bay is the northwestern recess of Ierissos Bay. Depths of 5 to 15 fathoms, rock, extend from the shore to a distance of 500 yards, and farther offshore they deepen abruptly. There is a pile pier with a depth of 17 feet at its head. A light is shown about 75 yards southeastward of the head of the pier. An obstruction, with a depth of 23 feet over it, is about 100 yards southeastward of the head of the same pier. Along the shore are some conspicuous furnaces.

The usual anchorage at Stratoní Bay is about 800 yards off the town in about 15 fathoms. Several mooring buoys are located in the bay close off the town. The anchorage is assailed principally by northeast winds. A calm prevails at the interior of this bay during the trade winds in the summer, but sometimes a troublesome sea enters and forces even the larger vessels to interrupt their loading and to seek anchorage in Plati Harbor. The bay is attacked very slightly by winds from northeast to south, which force smaller vessels to seek anchorage at Plati Harbor.

Pilotage is compulsory. The mining company has a small tug.

7-69 Stratoní (Stratonion), a town of more than 1,000 inhabitants, is located at this bay; it serves as the landing place for the inland town of Stratoniki (Isvoros). Besides iron ore, some timber is exported. The mines have a work shop, where the performance of minor repairs is possible. Provisions are available in limited quantities. Potable water is not available, but boiler water is piped onto the pier.

The town has postal, telegraph, and telephone facilities. Coastal vessels call.

7-70 Coast.—From Stratoní Bay the northern shore of Ierissos Bay trends 4 miles eastward to Cape Eleuthera. Heights of 2,254 feet back this precipitous and uninhabited shore, off which the depths are great.

Cape Eleuthera (Elevthera), the northern entrance point of Ierissos Bay, is lofty and craggy. A short distance eastward of this cape is located Eleuthera Islet (Elevtheronisos), and three steep-to rocks above water lie southward of the islet.

7-71 GULF OF RENDINA (STRIMONIKOS KOLPOS) (entrance $40^{\circ}36' N.$, $23^{\circ}58' E.$, *H. O. Chart 3968*), also known as the Gulf of Orphano or Ruphani, is formed between Khalkidike Peninsula on the west and Macedonia on the north, and is separated from Ierissos Bay to the south by the peninsula terminating to the east in Cape Eleuthera. The entrance is 12 miles wide between Cape Eleuthera to the southwest and Cape Deutheros to the northeast, and

from its entrance the gulf trends 14 miles northwestward without any considerable reduction in width. The depths are great in the interior and off the shores, which in most places are clear of dangers. The western and northern shores are high, but along the western side of the head of the gulf is a low sandy beach with high land in the interior. Several anchorages are available in this gulf.

Coast.—From Cape Eleuthera the coast trends 2 miles northwestward to Cape Marmora (Marmari) (North Point). Immediately westward of Cape Marmora is Marmari Bay, which, having a depth of 8 fathoms at its head, is sheltered from all weather. In the approach to this small bay in a position about 1 mile west-northwestward of Cape Marmora and one-half of a mile offshore lies a rock with depths of 5 fathoms extending south-southeastward from it. Being only 3 feet high, this rock is dangerous at night.

From Marmari Bay the coast trends first $1\frac{1}{2}$ miles westward and then 2 miles northwestward to Liviada Bay. A loading place for charcoal is located at the bend of this coast, and farther northward is a hill, 334 feet high.

7-72 Liviada (Olimbias) Bay is limited to the south by a narrow point extending east-northeastward and having depths of 10 fathoms near it. The western side of the bay, about 1 mile in length, is a low sandy beach, off which are moderate depths, decreasing gradually toward the south. The southern side is indented by two small shallow coves; both have a sandy beach where boats can easily land.

Kaphkanas (Kavkanas) Islet lies three-fourths of a mile eastward of the northern limit of Liviada Bay. Rocks above and below water extend from the islet, the distance being considerable from the northern and southwestern side. As rocks above and below water also extend from the northern limit of the bay, the narrow passage between this limit and the islet has a depth of 9

fathoms, the fairway being over to the islet side.

In the area south-southwestward of Kaphkanas Islet are depths of 12 fathoms, decreasing to 7 and $6\frac{1}{2}$ fathoms toward the southern side of the bay. This whole area is adequately sheltered by the islet from northerly and northeasterly winds, and affords anchorage in all kinds of weather.

Light.—A light is shown at the eastern end of Kaphkanas Islet.

7-73 Olimbias, a village of 300 inhabitants, is located at the southern end of Liviada Bay. At this village are a customhouse, a pier, and some warehouses. A conspicuous factory at the northern end of the village has a pier. One of these piers is about 236 feet long, but the depths off its head are suitable only for small vessels or boats.

7-74 Coast.—From the northern limit of Liviada Bay the coast trends $3\frac{1}{2}$ miles northwestward to Stavros Point, the eastern limit of Stavros Bay. A dangerous rock with a depth of 6 feet lies 1 mile southeastward of Stavros Point and 200 yards off the coast, and near this rock is a loading place for charcoal. Vessels should remain one-half of a mile offshore along this stretch of the coast, as rocky shallows also extend 500 yards from Stavros Point.

7-75 Stavros Bay is formed westward of Stavros Point. On the shore $1\frac{1}{2}$ miles westward of the point stands a conspicuous building (customhouse), close westward of which is a landing place. A small T-head pier is about 600 feet northwestward of the customhouse. A small pier, with a light shown from its head is about 300 feet eastward of the T-head pier.

Works in progress (1959) about 450 yards northward of the above light. Good anchorage may be obtained in a depth of 14 fathoms, mud, with the customhouse bearing 196° , distant 800 yards, and Stavros Point bearing 120° . Another good berth is 800 yards northward of the pier in a depth of 12 fathoms, mud, good holding ground. Strong easterly winds, which cause a rough sea, render this anchorage untenable.

7-76 Kato Stavros.—The village of Kato Stavros (1,760 inhabitants), together with the smaller settlement of Ano Stavros (480 inhabitants), is located at Stavros Bay. This village, a summer resort, has a customhouse, a post office, and a telegraph office. It is the terminus of a narrow-gauge railroad.

Piers.—Two piers, one about 250 feet long with a 75 foot T-head, are at Kato Stavros.

7-77 Coast.—The western and north-western shores of the head of the Gulf of Rendina are of only slight interest. The level land bordering the low sandy shore is backed by great heights. Depths of more than 20 fathoms exist 600 yards offshore. Violent northeasterly storms do not blow home in this part of the gulf. Once a maximum force of 6 was registered at Kato Stavros when a violent gale was blowing in the Aegean Sea.

At a short distance northward of the village of Kato Stavros discharges the Rendina Boghazi (Rikhios River), spanned by a conspicuous bridge. About $3\frac{1}{2}$ miles northward of Stavros Bay and a short distance inland is Asprovalta (100 inhabitants), where there is a conspicuous church. After a small cove on the northwestern side of the head of the gulf the high and wooded shore trends 4 miles east-northeastward to Tsayezi Bay, a small bay at the mouth of the Struma River. About 2 miles west-southwestward of this bay is a conspicuous yellow cliff.

7-78 Struma (Strimon) River ($40^{\circ}47'$ N., $23^{\circ}51'$ E., H. O. Chart 4230) discharges into Tsayezi Bay, which forms the northernmost part of the Gulf of Rendina. The old bed of the river is just eastward of this small bay, at the head of which is Chai Aghizi (Iraklista), a small settlement with a yellow customhouse. The depth off the mouth of the river is only 13 feet, and this depth is subject to change. The shoreline in the vicinity of the mouth of the river has been extended due to alluvium deposits; there is less water (1965) than charted. Boats of shallow draft ascend the river to a place near the former head of Takhimos Geul (Limni Akhinou). Currents caused by the river attain velocities as great as $2\frac{1}{2}$ knots.

A wreck is charted in the western part of Tsayezi Bay.

Anchorage.—Anchorage in any convenient depth is available off the settlement of Chai Aghizi. In 1938 a British naval vessel anchored with the customhouse bearing 352° , distant 1,400 yards. At this berth a constant south-going current of 2 knots was experienced. At times the water is much discolored by the mud from the river. The depths of the main, or western, mouth of the Struma River were 7 to 8 fathoms, mud, in 1945.

7-79 Amfipolis ($40^{\circ}47'$ N., $23^{\circ}52'$ E.) is an artificial port cut into the eastern bank of the subsidiary, or eastern, mouth of the Struma River. When a vessel is approaching from southward, this subsidiary mouth is hidden by the flat sandy spit forming the southern side of the port. The main mouth of the Struma River and the bridge across this river are visible from a fair distance to seaward.

The port consists of a rectangular basin, and except for the west side, which is shallow, the basin has average depths of 22 feet. The entrance, which is the original subsidiary mouth of the river between two sand spits, and which is open to the westward, is normally about 250 feet wide. In 1955, the entrance was reported silted up, with depths of less than one foot prevailing. Depths within the basin are probably greatly reduced because of general silting. The basin has four concrete quays, one each on the northern and eastern sides, and two on the southern side.

Anchorage is available outside of the entrance to the harbor in depths of 7 to 9 fathoms, mud.

Tides and current.—There is only a slight change in the level of the water in the harbor. The only current is a very slow one from the subsidiary river flowing through the harbor.

7-80 This section has been deleted.

7-81 Cape Deutheros (Dhevtero) ($40^{\circ}42' N.$, $24^{\circ}02' E.$, *H. O. Chart 3968*), located $9\frac{1}{2}$ miles east-southeastward of Tsayezi Bay, is the northeastern entrance point of the Gulf of Rendina. The sandy northeastern shore of the gulf between the bay and the cape has depths of less than 5 fathoms extending offshore as far as 600 yards. As shallow depths extend one-half of a mile from Cape Deutheros, it should be given a berth of more than 1 mile.

Small craft with local knowledge obtain shelter from northerly winds just westward of Cape Deutheros. This anchorage is inside of a shallow sandy spit extending westward from the cape.

Pilav Tepe (Pilaftepe), a conspicuous mountain, 6,417 feet high, rises 11 miles north-northeastward of Cape Deutheros.

Coast.—Between Cape Deutheros and the Gulf of Kavalla, 15 miles east-northeastward, the coast is backed by mountainous land. Depths of less than 5 fathoms extend offshore only a short distance. About 5 miles eastward of Cape Deutheros is a small point fringed by rocks; on this point stands the tower of Apollonia, backed by a 479-foot hill. This stretch of the coast is uninhabited except for the small settlement of Loutra Elevtheron, located 1.5 miles westward of the tower.

7-82 GULF OF KAVALLA (KOLPOS KAVALLAS) (*H. O. Chart 4301*) has a width of 13 miles in its entrance between Cape Brasides on the west and Cape Koyun Nakla on the east and recedes 7 miles in a northerly direction. The gulf is attacked by southerly winds, but is partially sheltered from the southeast by Thasos Island. Several rocky islets lie along the western shore, but the main part of the gulf is free of dan-

gers. The 20-fathom curve is 2 miles off the northwestern recess and 4 miles off the northeastern recess; the remainder of the gulf has depths slightly over 20 fathoms. The city of Kavalla, together with its harbor, is located at Kavalla Bay, the northwestern recess of the gulf.

7-83 WESTERN SIDE OF THE GULF OF KAVALLA.—**Cape Brasides (Vrasidhas)** ($40^{\circ}49' N.$, $24^{\circ}20' E.$, *H. O. Chart 4301*), the western entrance point of the Gulf of Kavalla, as well as the southern entrance point of Deuthero Cove, is the eastern extremity of a narrow peninsula extending $1\frac{1}{2}$ miles in an easterly direction and attaining a height of 220 feet in its eastern part. The easternmost of three coves indenting the southern side of the peninsula has depths of $2\frac{3}{4}$ fathoms and less, while the other two have depths of $4\frac{1}{4}$ fathoms in the entrances and considerably less in the inner parts. A depth of 9 fathoms is located in a position about 1 mile east-southeastward of Cape Brasides.

7-84 Deuthero Cove (Leftera Bay) (Limin Elevtheron), the bay entered northward of Cape Brasides, indents the western shore of the gulf to a distance of nearly $1\frac{1}{2}$ miles in a westerly direction. The entrance has a width of nearly 1,600 yards, but inside the entrance the bay widens out to a distance of $1\frac{2}{3}$ miles. The northern entrance point is the termination of a peninsula extending one-half of a mile in a southerly direction and attaining a height of 584 feet at its base. The shores of the bay are fringed by shallow depths, the 5-fathom curve being as far as 650 yards offshore in the southwestern part of the bay.

An old Turkish fort (Chiftilik) stands on the shore at the southwestern recess of the bay. Off the mouth of a small stream discharging about midway along the western

shore are two small rocky islets, located on a shallow bank extending 550 yards east-northeastward from the mouth. On the western shore farther northward of these islets is the village of Nea Peramos.

A light is shown from the northern entrance point of Deuthero Cove.

Shoal.—A shoal, with a depth of 2 fathoms lies 1,685 yards west-southwestward from Deuthero Cove Light.

Anchorage.—Deuthero Cove can accommodate a number of vessels in depths of 12 to 5 fathoms, mud. The bay is open to easterly winds, but even during these winds small vessels can anchor in the northern part of the bay, where the best berth is in a depth of 8 fathoms over 200 yards south-westward of the pier extending from the eastern shore.

Vessels from Kavalla sometimes obtain shelter here from southerly winds. There are little or no tidal currents, and the sea level is much affected by the wind. The beaches of sand and shingle afford good landing for boats.

An area of foul anchorage, due to sunken buoys and moorings, is located in a position about 200 yards southwestward of the head of the old concrete pier.

7-85 Nea Peramos is a small village of 250 houses. It is mainly an agricultural and fishing community, but has a small primitive olive oil factory. About two miles inland is Eleutherai, a village of 1,500 inhabitants.

Piers.—The new concrete pier projecting from the northwestern shore of the bay has a length of 633 feet, a depth of 33 feet at its head, and a minimum depth of 30 feet on either side of its wide outer part. The head of the pier is located about 1,300 yards 299° from Deuthero Cove Light and extends in a 328° line to the shore.

The old concrete pier projecting from the northeastern shore of the bay has a length of 528 feet and 23 feet alongside its T-head. The pier is suitable for mooring boats up to 100 feet long.

7-86 Coast—Islets (*H. O. Chart 4301*).—The coast northeastward of Deuthero Cove is backed by a mountainous chain, which trends in a northeasterly direction for 32 miles to Mt. Zanthé, 3,815 feet high, which is conspicuous.

Kisilad Islet (*Xironision*). a small rocky islet fringed by rocks, lies three-fourths of a mile northeastward of the bluff point located 1 mile northward of the entrance to Deuthero Cove. The depths 100 yards off this islet are 10 fathoms.

Between the above-mentioned bluff point and Kavalla Bay, about 5 miles northeastward, the shore of the gulf is indented by several small bays and has off it several small islets and sunken rocks. Nea Iraklistia, a rather new settlement of 400 inhabitants, is located westward of Kisilad Islet, and near Kavalla Bay is the small settlement of Kalamista.

Kalamista Islets (*Nisis Kalamitsa*), two in number and 10 feet in height, lie in a position 300 yards south-southeastward of Cape Kalamista, the western entrance point of Kavalla Bay. These islets are fringed by rocks above and below water, and are separated from Cape Kalamista by a narrow channel with a depth of 21 feet. A low iron post stands on the northern islet.

7-87 NORTHERN SIDE OF THE GULF OF KAVALLA.—Kavalla Bay (*40°55' N., 24°24' E., plan K on H. O. Chart 4151*), the northwestern recess of the gulf, is 1 mile wide in its entrance between Cape Kalamista on the west and a conspicuous peninsula on the east, and recedes one-half of a mile in a northerly direction. The depths in the outer part of the bay are about 12 to 10 fathoms and decrease gradually toward the northern shore, where the 5-fathom and the 3-fathom curve are, respectively, 300 and 200 yards offshore. A detached 3-fathom rocky shoal lies 250 yards offshore in the northwestern part of the bay.

The peninsula forming the eastern side of the bay is connected to the mainland by a low isthmus, on which is a Roman aqueduct. On the 230-foot summit of the peninsula stands a ruined fort, below which is the old section of the city, but the most conspicuous landmark on the peninsula is a white belfry

close northward of the main lighthouse at the southern extremity of the peninsula. A sanitarium, painted yellow, stands by itself on a hill back of the newer section of the city and is conspicuous from a considerable distance at sea. A conspicuous flour mill with a silo stands at the northern recess of the bay. A radio mast, showing a red light, stands about 1 mile west-northwestward of the southern breakwater head.

A rock, 10 feet high, lies close southward of the extremity of the peninsula. This rock is steep-to on its western side.

A quay, sheltered by a breakwater, lies about 1/4 mile northward of Cape Kalamista. There are depths up to 39 feet along the western side of the breakwater, and along the eastern side and head there are depths of up to 50 feet. A light is shown from the head of the breakwater.

7-88 The harbor, which takes up the eastern part of Kavalla Bay, is sheltered from the south by a breakwater extending 600 yards in a westerly direction from a position close northward of the extremity of the peninsula. On the northern side of the harbor are North Quay and West Breakwater, which protect the harbor from westerly winds. The eastern side of West Breakwater has depths of 20 to 21 feet for the first 200 yards from shore. From thereon to its head the least depth is about 15 feet with some foul ground where foundation rocks extend off its eastern side and head; the entire length of West Breakwater is foul along its western side. The southern breakwater has a depth of 36 feet along the inner wall.

The entrance between the breakwaters is about 250 yards wide. Vessels entering should keep well off the heads as they are foul with rocks for a distance of approximately 60 feet. North Quay has 20 to 25 feet alongside. The eastern side of the harbor is quayed, and in the northeastern part of the harbor is a small boat basin with depths of 3 to 36 feet.

Lights.—The main light is shown from the eastern side of Kavalla Bay.

A light is shown from the head of each of the breakwaters.

A radio mast showing an obstruction light stands about 1,800 yards west-northwestward of the western extremity of southern breakwater.

Anchorage can be taken off the breakwater westward of the lighthouse in 10 to 13 fathoms, sand. This area is subject to a heavy swell during southerly winds, when vessels must seek shelter in either the harbor or Deuthero Cove. A 17-foot patch is close northwestward of the head of the above breakwater. It is reported that there is excellent holding ground in 18 fathoms, mud, about 1,350 yards southeastward of the breakwater light.

Pilotage is compulsory. Pilots board vessels one mile from the harbor entrance. Vessels are not permitted to enter the harbor after dark.

7-89 KAVALLA (40°56'N., 24°25'E., H.O. Chart 4301 and plan K on H.O. Chart 4151), a city with about 44,500 inhabitants in 1961, consists of an old part and a newer part. The old part, built on the peninsula forming the eastern side of the harbor, is surrounded by a well-preserved ancient wall, and the newer part, having modern buildings for the most part, is built on the slopes of the hills northward of the harbor. The city is an important center for the export of tobacco, the principal crop in this part of Greece.

Wharves.—The inner side of the breakwater has about 1,800 feet of berthing space with 36 feet alongside. The eastern quay has about 1,200 feet of berthing space with 36 feet alongside. North Quay has about 850 feet of berthing space with 20 to 25 feet alongside. The eastern side of West Breakwater (West Pier) has about 380 feet of usable space with a least depth of 20 feet alongside. Vessels moor stern-to at the southern breakwater and alongside the quay. A small motor launch is available for running lines and assisting vessels. There is a 3-ton traveling crane and hand cranes with from 2 to 10 tons capacity are available.

The pier at the flour mill, located at the northwestern recess of Kavalla Bay, has a length of 230 feet and a depth of 17 feet at its head. A mooring buoy is located near the pier.

Repairs.—Only minor repairs can be performed.

Supplies.—Provisions can be obtained in plentiful quantities. Water is piped to the eastern quay and the inner half of West Pier. The water is not suitable for boilers. Fuel and diesel oils are available for normal demands.

Communications.—Kavalla is connected to the general telegraph and telephone systems. There is automobile service to the town of Drama, the nearest place having railroad connections. Several steamship lines make Kavalla a port of call.

Hospital.—The city has a hospital, which will receive seamen.

Meteorological table.—See appendix II.

7-90 Coast (H. O. Chart 4301).—The northern shore of the Gulf of Kavalla trends about $5\frac{1}{2}$ miles in an east-northeasterly direction from the Bay of Kavalla. About midway along this low and sandy shore is Akra Spathi, a slight projection, where depths of less than 5 fathoms extend 400 yards offshore. Eastward of this projection the 5-fathom curve is 800 yards offshore. Near the eastern end of this stretch of the shore is another slight projection, where stands the village of Nea Karvali (1,100 inhabitants).

A rock, which projects a few inches above the water, lies about $\frac{1}{2}$ mile off that part of the northern shore before it curves to the south-southeast.

A pier, 900 feet long, lies in the cove eastward of Akra Spathi. The pier is part of a fertilizer plant and can accommodate vessels up to 8,000 tons. Two conspicuous silver tanks stand close eastward of the plant. A light is shown from the head of the pier.

7-91 THE EASTERN SIDE of the Gulf of Kavalla from a position close eastward of the village of Nea Karvali trends $7\frac{1}{2}$ miles south-southeastward to Cape Koyun Nakla. Extensive shallows extend from this low and sandy side of the gulf, which, as previously stated, should be given a wide berth. At the northern end and at the middle of this shore are, respectively, two fish hatch-

eries; the southern one has some trees and a conspicuous house, the only marks of recognition on this side of the gulf.

7-92 Cape Koyun Nakla (Ammouhis) (Koan), the eastern entrance point of the Gulf of Kavalla, as well as the northwestern limit of Thasos Strait, is very low. Shallow depths extend 700 yards southward and southeastward from the cape, but the depths off the western side of the cape are reported to be 8 fathoms or more. A bank, with a depth of 10 fathoms, lies in a position about $3\frac{1}{2}$ miles southwestward of Cape Koyun Nakla.

A light is shown from Cape Koyun Nakla. Shoals have been reported within 2 miles of this light.

7-93 THASOS ISLAND ($40^{\circ}40' N.$, $24^{\circ}39' E.$, H. O. Chart 3968), the northernmost island in the Aegean Sea, is separated from the mainland immediately eastward of the Gulf of Kavalla by Thasos Strait. This somewhat circular and mountainous island has a maximum extent of 14 miles in a north and south direction and 12 miles in an east and west direction, and attains a maximum height of 3,947 feet in Mt. Hipsarion (Oros Ipsarion), located in its northeastern part. The eastern and southern coasts are rocky and precipitous, but the western and northern coasts are sandy for the most part. The depths at a short distance off the island are great and free from dangers, and several islets lie within 1 mile of the coast. Temporary anchorage during offshore winds can be obtained in several small bays indenting the island.

Lumber and charcoal are obtained from the forests on the island. Near the coasts are olive groves, and vineyards cover the level areas. As the island has abundant water and the soil is fertile, grain, vegetables, and fruit are raised in considerable quantities. The raising of cattle is also an important industry. The mines on the island have not been worked in recent years.

Thasos Island has a population of about 11,500. About 1,050 inhabitants live in the capital town of Panagia (Panayia), located in the northeastern part of the island and the remainder live in villages along the coast and at short distances in the interior.

7-94 WESTERN SIDE OF THASOS ISLAND—Coast.—From Cape Ommanney (Pakhi) (*H. O. Chart 4301*) the northernmost point of the island, the coast trends 8 miles southwestward to the northeast entrance point of Kazaviti Bay (Ormos Prinos). Shallows extend 800 yards offshore, and the 5-fathom curve is as far as 1 mile offshore. About midway along this section of the coast is Skala Rakhoniou (150 inhabitants), the landing place for the inland village of Rakhonion (550 inhabitants). Skala Rakhoniou has a small pier.

Kazaviti Bay, about 2 miles wide in its entrance open to the north-northwestward, has depths of less than 3 fathoms in its inner part. The bay has mooring buoys for small vessels and a satisfactory anchorage with a bottom of mud and weeds; however, during westerly to northwesterly winds, there is no protection. Shoaling is more rapid in the eastern portion than in the southern portion of the bay. Cape Prinos, the southwestern entrance point of the bay and also the northwestern point of the island, is low and sandy, but it is easily identified by a cluster of pines upon it. Depths less than one fathom, with a mud bottom, extend 1/4 mile from the point. A light is shown on the Cape. On the low shore at the recess

stands Skala Kazavition (100 inhabitants), the landing place for the inland villages of Megalo Kavamiti (Mega Kazavition) (Mega Prinos) (800 inhabitants) and Mikro Kavamiti (Mikron Kazavition) (Mikron Prinos) (300 inhabitants).

There is a pier in Kazaviti Bay about 150 feet long with 12 feet of water 60 feet from its head.

Anchorage.—In 1929 a Dutch merchant vessel, seeking shelter from strong southerly winds, anchored off Kazaviti Bay in a depth of 7½ fathoms, good holding ground of hard clay with weeds, with Cape Prinos bearing 203°, distant about one-half of a mile, and the light on Thasos Pulo just open of Cape Ommanney. The depths eastward of this berth shoal more rapidly than those toward Cape Prinos.

7-95 Coast.—From Cape Prinos the coast trends first 6¾ miles south-southwestward to Cape Ayios Yeoryios and then 1½ miles southward to Cape Atspas. About 2 miles southward of Cape Prinos is the small settlement of Skala Sotiros, the landing place for the inland village of Sotiros (400 inhabitants). A pier, 150 feet long with a depth of about 12 feet at its head, is located at Skala Sotiros. A wooden pier, in disrepair, lies about 1/2 mile southward of the above pier. The anchorage off the skala is safe during southerly and easterly winds.

Skala Kalirrakhis, located 1¾ miles southward of Skala Sotiros, is the landing place for the inland village of Kalirrakhi (1,200 inhabitants). A conspicuous white house stands near the shore about 1 mile westward of the village. At this skala is a conspicuous tobacco warehouse, and on a promontory southward of the skala stands a conspicuous church. The coast southward of this promontory has shoal depths extending offshore as far as 150 yards, after which the depth increases suddenly to 16 fathoms or more. This coastal bank is easily recognized by the light green color of the water.

About one-half of a mile northward of

Cape Atspas is a small cove open to the westward. At this cove is Skala Maries, the landing place for the inland village of Marias (500 inhabitants). A T-head pier extends 30 feet from the shore; a depth of 15 feet lies several yards offshore. A light is shown on Cape Atspas.

Cape Kephalo (Kefalas), characterized by an irregular cliff lined coast, is located 1 1/3 miles south-southeastward of Cape Atspas, from which it is separated by a cove open to the southwest.

Buoy.—A barrel-type mooring buoy is located about 2 miles southwestward of Cape Kephalo.

7-96 SOUTHERN SIDE OF THASOS ISLAND—Coast.—Cape Ayios Andonios ($40^{\circ}35' N.$, $24^{\circ}35' E.$, *H. O. Charts 4301 and 3968*), a conspicuous headland, 190 feet high, is located 4 miles southeastward of Cape Kephalo, and the coast between them recedes to form a bay open to the southwest. Depths of less than 5 fathoms and even less than 3 fathoms extend as far as 650 yards from the northern shore of the bay, but the depths are great along the eastern shore.

Hamadiëh (Limenaria), a village of 1,220 inhabitants, is located on the low shore backed by a high land at the head of the above-mentioned bay. Eastward of a steep, cliffy point at the eastern end of the village, on which stands a conspicuous house, are some abandoned mining establishments with two iron piers in disrepair. Close westward of the above pier is a cement pier 300 feet long with 20 feet alongside (being dredged 1966). A large shoal with less than 4 feet at 1/4 mile from the shore. With strong southwest winds, mooring at Hamadiëh is impossible. This village, a summer resort, has custom and telephone facilities.

Potos, a small settlement, is located two-thirds of a mile northward of Cape Ayios Andonios. Depths of less than 3 fathoms extend 150 yards off this settlement.

7-97 Anchorages.—Anchorage is available off the iron piers at Hamadiëh in depths of 9 to 6 fathoms. Vessels are advised to

leave the anchorage at Hamadiëh during strong winds between south and west-southwest.

Good anchorage can be obtained in a depth of 7 fathoms, sand, about 400 yards southwestward of the settlement of Potos. It is often possible to remain at this anchorage under conditions that make impossible the anchorage off Hamadiëh.

During strong southerly winds it is often impossible to land at Hamadiëh, but landing is possible at Potos during all winds except strong ones from the west.

In 1929 a Dutch merchant vessel anchored off Hamadiëh in a depth of $7\frac{1}{2}$ fathoms, sand, with Cape Kephalo bearing 272° , Panagia Islet bearing 152° and just open of Cape Ayios Andonios, and the iron piers bearing 010° , distant about 400 yards; these bearings are approximate. This vessel also anchored in a depth of 9 fathoms, good holding ground, with Panagia Islet open twice its length of Cape Ayios Andonios. From this last berth the water shoaled gradually to 4 fathoms at 100 feet off the shore.

A procedure recommended by this same Dutch vessel for approaching the anchorage after dark is to back out the anchor to 10 fathoms and to head in slowly until the anchor takes the bottom, soundings being taken all the time from amidships.

7-98 Coasts.—The bay between Cape Ayios Andonios and Cape Kokkina, $2\frac{1}{2}$ miles southeastward, is divided by Oxia Point into two parts, the northwestern part being named Rosongremnos Bay and the southeastern part being named Astris Bay.

Cape Kokkina (Salonikos), the southern extremity of Thasos Island, is a conspicuous projection with irregular shores having deep water near them.

Panagia (Panayia) Islet is located three-fourths of a mile southwestward of Cape Kokkina, from which it is separated by a deep passage. Landing on this precipitous rocky islet is possible only at the cove on its southern side. Two rocks, one of which is

82 feet high, lie close off the southeastern extremity of the islet. A can buoy is located about $7\frac{1}{2}$ miles west-southwestward of Panagia Islet.

Coast.—Between Cape Kokkina and Kalami Point, $1\frac{1}{2}$ miles east-northeastward, the coast is indented by several small coves fronted by rocks above and below water. Kalami Point is the southern limit of the small bay of Kalamaki, open to the southeast. From Kalamaki Bay the coast trends 2 miles eastward to Demir Khalkas Point, the southern limit of Thimonia Bay, open to the southeast; close westward of Demir Khalkas Point stands a monastery. About three-fourths of a mile eastward of Thimonia Bay is that of Alikí, open to the south-southwest; here is the small settlement of Alikí.

Close eastward of Alikí Bay is a larger bay receding 1 mile in a northerly direction. Cape Hagios Georgios (Ayios Yeoryios) (Baboura), marked with large protruding rocks extending south-southeastward about 200 yards, forms the eastern entrance point of this bay.

A light is shown on Cape Hagios Georgios.

7-99 EASTERN SIDE OF THASOS ISLAND—**Coast.**—The eastern coast of Thasos Island is characterized by steep rocky cliffs, great depths near the cliffs, and many small offshore islets. Kinara Bay has a mud bottom and provides good anchorage for vessels up to 100 feet in length.

Kinara (Kinira) Islet ($40^{\circ}40' N.$, $24^{\circ}46' E.$, H.O. Chart 3968) is located 4 miles northward of Cape Hagios Georgios and in the southern part of Kinira Bay. The southwestern part of this steep-to rocky islet is one-third of a mile off the western shore of the bay, and the fairway is toward the islet, as a 1-fathom rocky shoal extends from the shore of the bay. Fournol Point, located 1 mile northward of the islet, is the northern entrance point of the bay and has close off it a rock above water.

The small settlement of Kinira, the landing place for the inland village of Ano Theologos (1,800 inhabitants), is built on a low projection of the western shore of Kinira Bay in a position abreast the northern end

of Kinara Islet. Depths of less than 5 fathoms extend some distance from this settlement, but farther off they increase to 16 fathoms or more.

7-100 Potamia Bay, located 1 mile northward of Kinira Bay and open to the eastward, is $1\frac{1}{2}$ miles wide in its entrance between Cape Grambusa on the south and Cape Pirokas (Pirgos) on the north, and recedes 1 mile in a westerly direction. The bay is cliff lined on its northern and southern sides and has a sandy beach at its head. The bottom near shore is sandy with scattered large rocks. Shallow depths extend 500 yards from the low western shore of this bay, after which distance they increase to more than 19 fathoms in the entrance. Gramvousa, the steep-to rocky islet, 95 feet high, located close off Cape Grambusa, has a small church on its summit. Cape Pirokas, the northern entrance point, is 187 feet high and steep-to. About midway along the sandy beach of this bay and 500 yards back stands a cluster of three tall poplar trees, outstanding and conspicuous on approach from any direction. A two-storied building at the southern end of the beach is also a landmark.

Skala Potamias, the landing place for the inland village of Potamia (900 inhabitants), is located in the southern part of Potamia Bay. This settlement has an old ruined stone pier which has a depth alongside of less than 6 feet. It is suitable for small fishing vessels only. The area off the settlement affords good anchorage. About $1\frac{1}{4}$ miles westward of the northern part of Potamia Bay is Panagia (Panayia), the capital of Thasos Island.

Cape Vathi (Kaloyeria), which projects in a northerly direction for a short distance, is located $1\frac{1}{2}$ miles northward of Cape Pirokas. Immediately westward of Cape Vathi is Bathu (Vathi) Cove, which, having depths of $2\frac{1}{4}$ fathoms in the inner part and 8 fathoms in the entrance, affords shelter to small craft against southerly winds.

Ayios Ioannis Bay is the name given to the large bight between Cape Vathi and Cape Arkhangelos, $2\frac{1}{4}$ miles northwestward. This bay has shoal depths extending offshore for a short distance, after which the

depths are under 8 fathoms. A rock awash lies close offshore in the bay. Cape Arkhangelos, which projects eastward, has deep water near it.

7-101 The northern coast of Thasos Island, which commences at Wellings Point (Cape Evraiokastro), located 1 mile north-westward of Cape Arkhangelos, is described with Thasos Strait in section 7-102.

7-102 THASOS STRAIT ($40^{\circ}49' N.$, $24^{\circ}40' E.$, *H. O. Chart 4302*), which passes between the northern coast of Thasos Island on the south and the low plain of the Nestos River of the mainland on the north, is about 8 miles in length and has a minimum width of $3\frac{1}{2}$ miles in its western part. This strait with depths of 17 to 13 fathoms, mud or sand, is free from off-lying dangers, but near the middle of its eastern part lies the islet of Thaso Pulo. Transit through this strait by day or night presents no difficulties; vessels can pass close northward or southward, preferably the latter, of Thaso Pulo, and should give a good berth to Cape Koyun Nakla, the northwestern limit of the strait.

Navigation is prohibited at night in the territorial waters between Cape Koyun Nakla and Cape Baloustra.

Currents.—The current through Thasos Strait and also southward of Thasos Island sets generally westward. During southerly winds the stream from the Dardanelles is diverted from its usual course; striking Hagion Oros (Akti) Peninsula, it is forced northeastward and eastward along the coast of Greece. Under these conditions the current in Thasos Strait has been observed setting eastward with a velocity of $\frac{1}{2}$ to $1\frac{1}{2}$ knots.

In September 1893 a British naval vessel observed an east-going current in the outer part of Panagia Road, while at the same

time the current was west-going in the inner part of Panagia Road.

Caution.—Submarine cables extend across Thasos Strait close westward of Thaso Pulo and between Cape Koyun Nakla and Cape Ommanney. Anchoring and trawling are prohibited in the vicinity of these cables.

7-103 Thaso Pulo (Thasopoula) ($40^{\circ}49' N.$, $24^{\circ}43' E.$, *H. O. Chart 4301*), the rocky islet located over 2 miles northward of Wellings Point, the eastern limit of Panagia Road, extends 1 mile in a southeasterly and northwesterly direction and attains a height of 361 feet in its northwestern part. This steep-to islet is free from dangers.

A light is exhibited from an iron column and hut, the whole 19 feet high, on the southeastern end of Thaso Pulo.

7-104 SOUTHERN SIDE OF THASOS STRAIT.—Cape Ommanney (Pakhi) ($40^{\circ}48' N.$, $24^{\circ}39' E.$, *H. O. Chart 4301*), the southwestern limit of Thasos Strait, as well as the northernmost point of Thasos Island, is a precipitous rocky projection. The water is deep close northward of this cape, but shoal depths of 3 fathoms extend one-half of a mile westward from the coast immediately southwestward of the cape.

Wellings Point (Cape Evraiokastro), the southeastern limit of Thasos Strait, is located 3 miles east-southeastward of Cape Ommanney, from which it is separated by Panagia Road. On the hill within this cape are the conspicuous ruins of the ancient city of Thasos. Shoal depths extend about 100 yards northward from Wellings Point.

Bullmore Patch, a rocky shoal with a least depth of 7 fathoms, lies 800 yards north-northeastward of Wellings Point.

7-105 Panagia Road (Panayia Bay), which takes up the entire northern side of Thasos, is 3 miles wide in its entrance between Cape Ommanney on the west and

Wellings Point on the east and recedes as far as three-fourths of a mile in a southerly direction. Depths of less than 5 fathoms extend about 250 yards off the southwestern shore and nearly 600 yards off the southern shore; farther off the depths in the bay remain under 11 fathoms. Limena, the village located in the southeastern part of the bay, is built in a natural amphitheater facing northwestward. At the western end of the village is a conspicuous five-storied building, painted blue and having a red roof.

7-106 Harbor.—A harbor for small craft is located at the village of Limena. It is enclosed by two moles and the entrance, open to the westward, has a width of 180 feet. The general depths in the harbor are 10 to 15 feet.

A pier with a depth of 7 feet alongside is located about 300 yards southwestward of the harbor.

Lights.—The harbor entrance, located at the southwestern end of the breakwater, is marked by two lights. The light on the northeastern side is shown from a red iron framework structure, and that on the southwestern side is shown from a white stone beacon.

7-107 Anchorage.—Anchorage is possible anywhere in Panagia Road, but the eastern part is more desirable. A good berth for a large vessel is in a depth of 10 to 9 fathoms, good holding ground, with the southeastern extremity of the islet of Thaso Pulo bearing 018° and Wellings Point bearing 117°. A small vessel can anchor in a depth of 7 fathoms in a position 450 yards northwestward of the entrance to the artificial harbor; from this berth Wellings Point bears 074°.

Panagia Road is often subject to a swell from eastward, and the strength of the swell is proportional to the force of the wind. The marble along the northern side of the island

causes high temperatures during the summer, and torrential rains of a short duration occur quite frequently during a dry summer.

7-108 Limena (Thasos) (Limia), a village of more than 3,000 inhabitants, is the principal export place for Thasos Island, and serves the capital town, Panagia. The chief exports are honey, olive oil and timber. Water is plentiful. The village has telegraphic, custom, and postal facilities, and is connected by telephone and highway with the other villages of the island. Coastal steamers call.

7-109 NORTHERN SIDE OF THASOS STRAIT—Coast (H. O. Chart 3968).—Between Cape Koyun Nakla, the northwestern limit of Thasos Strait, as well as the eastern entrance point of the Gulf of Kavalla, and Kalamuti Point, 3 miles eastward, the northern side of Thasos Strait is indented by a bight that recedes nearly 1 mile in a northerly direction. Depths of less than 5 fathoms extend as far as one-half mile from the low shores of this bight, and decrease to less than 3 fathoms within 800 yards of the shore; elsewhere in the bight and in its entrance are depths of 11 to 5 fathoms.

Kalamuti Point (Cape Keramoti) (Kiremithi Burnu) is the western extremity of a narrow sandy spit extending two-thirds of a mile in a westerly direction and sheltering from the south, Kalamuti Harbor, the easternmost part of the above-mentioned bight. About 50 yards westward of Kalamuti Point are depths of more than 5 fathoms, and depths of less than 3 fathoms extend over 200 yards from the southern side of the sandy spit of Kalamuti Point.

7-110 Kalamuti Harbor (40°51' N., 24° 42' E., plan H on H. O. Chart 4151), located northward of the sandy spit terminating in Kalamuti Point, is open to westerly winds, which cause a heavy sea. During other winds this harbor affords good and safe anchorage, which is preferable to that at Panagia Road, except during southerly

winds, where the varying current causes a considerable swell even in a moderate breeze.

Having a width of more than one-half of a mile in its entrance, the harbor trends two-thirds of a mile eastward to its head, where the width is 400 yards and the area with depths of 5 to 4 fathoms is only 200 yards wide. The northeastern shore is a sandy strip, and at the southeastern end of this strip is the mouth of a stream flowing from some marshes. Immediately eastward of this mouth is the eastern shore, where is located the village. At the northern end of the village stands a church.

Kalamuti Point is the western extremity of a sand spit which forms the southern shore of Kalamuti Harbor. Inner Spit, the sandy spit extending in a northerly direction from a position 400 yards eastward of Kalamuti Point, is not so defined, and the point 400 yards farther eastward is more prominent.

Lights are exhibited at the outer end of the pier in Kalamuti Harbor and at the head of Kalamuti Spit.

7-111 Anchorage.—Kalamuti Harbor affords anchorage to vessels of deep draft in depths of 8 to 7 fathoms and to those of lesser draft in depths of 6 fathoms closer in. The anchorage is sheltered from all winds except those between south-southwest and west, which, however, do not blow frequently.

The best outer berth is in 8 fathoms, sand and mud, with Kalamuti Point bearing 153° and the conspicuous yellow two-storied house in the northern part of the village bearing 099°. Another berth in 7½ fathoms is available with Kalamuti Point bearing about 220° and the outer end of the pier in Kalamuti Harbor bearing 107°.

Tides—Current.—The tidal range is from 2 to 2½ feet. When the Nestos River is in flood, there is a slight current from north to south in Kalamuti Harbor.

7-112 Kalamuti (Keramoti), the village is located at the head of Kalamuti Harbor, has about 630 inhabitants.

The chief exports are beans, wheat, and melons. The village has a concrete pier with a length of 300 feet. The depths alongside the outer portion of the pier vary from 21 to 26 feet. A 3,500-ton vessel has berthed alongside the northern side. A quay 175 yards long is about 50 yards south of the root of the pier. Fresh water in small quantities may be obtained from two wells in the village. Provisions are plentiful. The village is connected by telephone and highway with the inland towns of Khrisoupolis (Sarishaban), Xanthi, Komotini, and Kavalla.

7-113 Coast (H. O. Chart 3968).—Between Kalamuti Point and Sarishaban Burnu, 5 miles eastward, the low northern shore of Thasos Strait recedes slightly northward to form a bight. Shoal depths extend 600 yards offshore along the western part and only 400 yards offshore along the eastern part of this bight.

Sarishaban Burnu (Cape Nestos) (Cape Karasu), the northeastern limit of Thasos Strait, marks the mouths of the Nestos River.

The shore in the vicinity of Sarishaban Burnu extends farther southward than is charted. Silting is reported (1965) to extend seaward of the mouth of Nestos River.

Nestos River, known as the Mesta River in Bulgaria, where it commences, and also as the Kara Su, discharges by several mouths in the vicinity of Sarishaban Burnu. There is swampy land between the mouths, which are so completely barred by sandbanks that even boats cannot gain an entrance to the river. In 1916 depths of 5 fathoms were found close to the mouths with the exception of the easternmost one, where a bank with depths of less than 5 fathoms extended offshore for a distance of 1,200 yards.

A stranded wreck lies 1/3 mile offshore, about 2 miles northeastward of Sarishaban Burnu.

7-114 THASOS STRAIT TO ALEXANDROUPOLIS ROAD.—Cape Balustra (Baloustra) (Avdhira) (40°55' N., 24°58' E., H. O. Chart 3968) is located 9 miles east-northeastward of Sarishaban Burnu; the intervening coast has shoal depths extending offshore for a distance of one-half of a mile or more. This cape, a low rocky point

projecting in an easterly direction, has on it a conspicuous small church and the ruins of the ancient city of Avdhira. Near the cape is the village of Avdhira (600 inhabitants).

7-115 Porto Lagos (Ormos Porto Lago) (Ormos Vistonikos) (Kara-Agatch Bay) (entrance, $40^{\circ}56'N.$, $25^{\circ}04'E.$), between Cape Balustra and Fenar Point (Cape Fanari) (Fener Burnu), 7 miles east-northeastward, recedes about 4 miles in a northerly direction. Broken by the outlets of several lagoons, the low and sandy shore has shoal depths extending offshore for a considerable distance. Near the head of the bay, a narrow dredged channel with a least depth of 14 feet (1965) leads to a small harbor on the northwestern side of which is the village of Lagos.

Lake Burughiul (Limni Vistonis) (Buru Geul), the large shallow lake located northward of Porto Lagos, with which it is connected by a boat channel, is the largest fish hatchery in Greece. This lake is bounded on either side by an extensive plain.

7-116 Harbor.—The harbor southward of the village of Porto Lagos is a landlocked basin with a length of 850 yards in an east and west direction and a width of 250 yards in a north and south direction. The northeastern and southwestern corners and the northern and southern sides of the basin are each marked by a square pillar, about 7 feet in height. A line drawn between the latter pair of pillars divides the basin into an eastern, or military, portion and a western commercial portion. The harbor has two piers that ships of 150 feet in length can moor, and is dredged to 14 feet. The entrance to the basin is only 35 yards wide between two sandy spits.

Landmarks.—Approaching from the south, one sees an even range of hills behind

Porto Lagos with higher peaks to the east and west. When one is closer inshore, the low sandy spits which form the eastern and western sides of the bay become visible. In the daytime the village of Porto Lagos appears as a single row of low-lying red-roofed buildings facing seaward over the low land to the south of the harbor.

Light.—A light is exhibited from an iron column and hut, the whole 19 feet high, on Fenar Point.

Three oil lamps which are visible from the sea approach are displayed from a quay in the northeastern part of the basin.

Buoys—Beacons.—A light buoy is moored about 1.3 miles 299° from the light on Fenar Point, and marks the western limit of a shoal with less than 3 fathoms, that extends northwestward from Fenar Point.

The channel leading to the harbor is marked by two pairs of lighted beacons, one pair of lighted buoys, and one pair of unlighted beacons. Lighted beacons near the shore at the northern end of the harbor are in range $023\frac{1}{2}^{\circ}$, and lead through the channel.

The approach channel to the quay on the eastern shore of the bay has a width of 88 yards and depths of 16 feet, gradually decreasing to 9 feet at a distance of 100 feet off the quay. This approach channel is marked by 5 pairs of beacons and 3 range beacons which give the line of approach as $127\frac{1}{2}^{\circ}$ along the middle of the fairway.

The quay in the northeastern part of the landlocked basin has a length of 65 feet and a depth of 7 feet at the east end, 13 feet in the middle, and 14 feet at the west end.

7-117 Anchorage.—During offshore winds vessels can anchor westward of Fenar Point in a depth of 7 fathoms. Small vessels can anchor farther in the bay as con-

venient. The south wind which blows in March and in October may affect the working of cargo from vessels at anchor in the bay.

7-118 Porto Lagos (Porto-Lago), the village located on the boat channel connecting the bay with the lake, has a fluctuating population. A custom-house is located here. Water is procurable; a lighter but no cranes are available. The village is connected by highway with the inland towns of Komotini and Xanthi. Steamers call irregularly. Telephone and telegraphic services are available.

7-119 Caution.—Vessels should give a wide berth to the coast between Porto Lagos and Alexandroupolis, as the actual coast in places is considerably different from that shown on the present chart based on an old survey. In places dangers lie over 1 mile offshore.

7-120 Coast—Dangers.—Aroyi Point is located 2 miles east-southeastward of Fenar Point, the eastern entrance point of Porto Lagos, and open to the southwest between these two points is a cove, where is located the small settlement of Aroyi. The 5-fathom curve is about 1 mile offshore along this part of the coast.

A $3\frac{1}{2}$ -fathom rocky shoal lies 1 mile south-southeastward of Aroyi Point.

Cape Kourousmilou ($40^{\circ}55' N.$, $25^{\circ}16' E.$, *H.O. Chart 3968*), a rocky projection, 126 feet high, located 6 miles eastward of Fenar Point, is easily seen from a distance, as the land on either side is low. The cape is fringed by rocks near the surface of the water. At this cape is located the small settlement of Loutra Kourousmilou.

Khrisoforo, a rocky islet, lies 1,500 yards westward of Cape Kourousmilou, and is sep-

arated from the shore northward of it by depths of less than 6 feet. A rocky shoal with a depth of $3\frac{1}{2}$ fathoms lies 1,600 yards west-southwestward of the southwestern limit of Cape Kourousmilou, and 1,000 yards southward of this same limit is another rocky shoal with a depth of $2\frac{1}{2}$ fathoms. Apostoli (Mermingia) Rocks, the southernmost of which is above water, lie from 500 to 1,000 yards south-southeastward of the cape. Two shoals, with depths of $2\frac{1}{2}$ and $3\frac{1}{2}$ fathoms, are located about one-half of a mile and $1\frac{1}{4}$ miles westward, respectively, of Apostoli Rocks.

Anaduli Bay (Ormos Anoikto), open to the south, is 5 miles wide in its entrance between Cape Kourousmilou on the west and Akhladha Point on the east. Shallow depths extend 500 yards off the low shore of this bay, which has depths of $6\frac{1}{2}$ fathoms in the outer part and depths of 5 to 3 fathoms in the inner part. Some conspicuous red cliffs are located in the bay in a position 1 mile from Cape Kourousmilou, and from these cliffs sunken rocks extend 400 yards or more. This bay is suitable for temporary anchorage during northerly winds. The village of Anakioi is located a short distance in the interior, and near Akhladha Point is the settlement of Akhladha.

Maronia Point is located 6 miles eastward of Anaduli Bay, and along the low intervening coast with red cliffs in places are dangerous rocky shoals within the 5-fathom curve located as far as 1,400 yards offshore. Rocks and shallow depths extend over 250 yards from Maronia Point. Immediately

westward of this point, beside the ruins of the ancient city of Maronia, are the houses of the small settlement of Ayios Kharalambos, the landing place for the inland village of Maronia (600 inhabitants).

Close eastward of Maronia Point rises a hill to a height of 2,054 feet, and the precipitous and craggy coast southward of this hill forms a massive promontory. About $2\frac{1}{2}$ miles eastward of this promontory is a point with a ruined tower. From this point the low and sandy coast, broken in places by rocky projections, trends $5\frac{1}{2}$ miles east-southeastward to Cape Makri, and about 1,400 yards off this stretch of the coast are depths of more than 10 fathoms. Inland and about midway along this same coast is the village of Mesimvria.

Cape Makri is rocky and steep. Skala Makris, consisting of a few houses and a boat harbor, is the landing place for the inland village of Makri (600 inhabitants).

Between Cape Makri and Alexandroupolis Road, 6 miles eastward, the low coast has some rocky elevations and is backed by great heights. Rocks and depths of less than 4 fathoms extend offshore 500 yards along the western part of this coast and over 1,000 yards along the eastern part toward Alexandroupolis. The village of Nea Khili is $1\frac{1}{2}$ miles westward of Alexandroupolis.

7-121 ALEXANDROUPOLIS ROAD ($40^{\circ}49' N.$, $25^{\circ}54' E.$, *plan A on H. O. Chart 4151*), located 6 miles eastward of Cape Makri, is an open roadstead off the town of Alexandroupolis, where the coast forms a slight bight. The 5-fathom curve is $11\frac{1}{2}$ miles offshore. Eastward of the small artificial harbor the 3-fathom curve is 500 yards offshore, but westward of this harbor rocky patches of less than 3 fathoms lie as far as 800 yards offshore.

The city, built on flat land backed by mountains, can be identified from a distance by the lighthouse and the church with two dome-shaped towers located 500 yards north-northeastward of the lighthouse. Two large yellow stone buildings stand to the westward and at the back of the town.

7-122 Harbor.—The harbor consists of two basins both of which are enclosed by moles or breakwaters. The outer basin or harbor is formed on its southern and western sides by a breakwater which extends about 500 yards from the shore in a southeasterly direction and thence 350 yards east-south-eastward. The eastern side of the harbor is formed by a breakwater which extends about 570 yards south-southwestward from the shore. The entrance between the breakwaters has a minimum width of 150 yards and a controlling depth of 22 feet (1967). A vessel with a maximum draft of 22 feet can safely enter and leave the harbor. Vessels with drafts of 22 feet can moor at the northern side of the outer section of the western breakwater.

The inner basin is formed by two moles and is used primarily as a boat harbor. The entrance between the moles is 20 yards wide and has a minimum depth of 6 feet. Depths range from 5 to 9 feet in the basin. A barrel-shaped buoy is located about 80 yards south-southeastward of the head of the southern mole.

During northerly winds, the level of the water is always lower than at other times. Eastward of the harbor, there is a sloping seawall with some iron piers extending from it.

Lights.—A light is shown on the head of each breakwater forming the entrance of the outer harbor. Another light is shown on the head of a short mole at the entrance of the inner basin. The main light is shown on the shore about 200 yards westward of the inner basin.

A signal station, with which vessels can communicate by means of the International Code of Signals, is located at the harbor.

Caution.—Foul ground exists about $\frac{1}{2}$ mile 171° from the head of the east breakwater.

7-123 Anchorage.—The best anchorage at Alexandroupolis Road is in a depth of $4\frac{1}{2}$ fathoms, mud, $\frac{1}{2}$ to 1 mile offshore. Small vessels can anchor in a depth of 4 fathoms, sand and mud, with the light structure at the head of the old breakwater bearing 320° , distant one-half of a mile.

A vessel intending to anchor inshore should not bring the southeastern end of the southwestern breakwater to bear more than 025° when within 1 mile of the coast. The 72-foot tumulus close eastward of the town is a good mark for approaching the anchorage; the point southward of the tumulus is low and inconspicuous. The holding ground is reported to be good.

There is no protection from southwesterly winds, which, when strong, cause a heavy sea. The current, which generally sets along the coast, causes a vessel to swing broadside on to the sea and to roll heavily; consequently vessels usually have to put to sea.

The anchorage at Alexandroupolis Road is not safe in a gale from southeast, through south, to west-southwest. Although the holding ground is not poor, an exceedingly disagreeable sea rapidly gets up with very little wind, and during a gale the whole place is one sheet of foam.

Landing in the harbor is considered impossible with southerly winds, which may sometimes last a week in the winter.

It has been observed that when the island of Samothraki, especially its summit, is covered with clouds or fog, it is a certain sign that bad weather with northerly winds will follow in a few hours; clouds halfway down the mountain indicate southeasterly winds and clouds at the eastern end of the island indicate southerly winds.

Pilotage is recommended for large vessels, but licensed pilots are not available; however, an experienced boatman is available, if desired.

Wreck.—A dangerous wreck lies about 3 miles southward of the main lighthouse.

7-124 Directions.—Vessels bound for Alexandroupolis Road and passing eastward

of the islands of Imbros and Samothraki have to avoid two dangers—Zurafa Rock, which is an isolated danger located $6\frac{1}{4}$ miles eastward of the latter island, and the shallow bank bordering the coast northwestward of Cape Grenea, the northern entrance point of the Gulf of Xeros. Several vessels have grounded on the latter danger by keeping so far over to clear Zurafa Rock as to pass too close along the coast southward of the town of Enos. Cape Grenea can be distinguished by a 620-foot hill, which, located 2 miles east-northeastward of the town of Enos, makes as a double peak. From abreast Cape Grenea, steer for a conical hill in the range behind the city of Alexandroupolis, which course leads direct to the lighthouse. This hill cannot be mistaken, as the hills eastward and westward of it are higher.

Having passed the latitude of Zurafa Rock, a vessel should give a berth of at least $2\frac{1}{2}$ miles to Cape Grenea, which appears as low yellowish cliffs, and also to all the coast northward of the cape. The town of Enos, located on the side of a low hill, faces the sea, although it is on the southern side of Lake Bori, and can be identified by its old castle and walls. When a vessel is abreast the town of Enos the three previously-mentioned landmarks in the city of Alexandroupolis should be sighted, and the vessel can steer for the city.

The coast in the vicinity of Alexandroupolis is low, being a sandy beach, and about 2 miles inland is backed by a mountain ridge. This ridge runs at an angle to the coast, joining it at Cape Makri to the westward. Seen from some distance, the ridge appears to slope to the sea at Alexandroupolis, the flat land between them not being visible.

A vessel passing westward of the island of Samothraki should avoid its low western extremity, as, although the island is one of the highest in the Aegean Sea, this extremity is almost level with the sea for its entire length of $1\frac{1}{2}$ miles. At night too much caution cannot be observed, as the proximity of the high land renders any judgment of distance doubtful.

Vessels should give the coast westward of Alexandroupolis Road a berth of at least three-fourths of a mile until the lighthouse bears north.

7-125 ALEXANDROUPOLIS ($40^{\circ}50'N.$, $25^{\circ}53'E.$, plan on H.O. Chart 4151), formerly known as Dedeagatch, is a city with a population of about 20,750 (1966). It is an export center for agricultural products.

Berths.—There are no wharves for berthing oceangoing vessels. Five coastal vessels drawing less than 15 feet, each using the Mediterranean moor, can be accommodated simultaneously on the northern side of the western breakwater. One large vessel draw-

ing up to 22 feet can be accommodated alongside the eastern extension of the western breakwater. Cargo is generally transferred by lighter to the inner basin from vessels in either the anchorage or those moored to the breakwater.

There are 2 cranes in the inner basin; one is a 2-ton mobile crane, and the other is a manually operated 5-ton stationary crane. One 5-ton steam floating crane is also available.

The harbor is subject to silting and depths may change periodically.

Repairs.—There are three machine shops where minor repairs can be undertaken.

Supplies.—Provisions are plentiful; water is available in moderate quantity.

Communications.—The city is connected to the general railroad and telegraph systems. Coastal steamers call. The main inland towns are connected to the port by roads. Daily air service to Athens is available.

Radio.—There is a radio station open to public correspondence.

Hospital.—The city has a hospital.

7-126 Coast.—For the continuation of the coast southeastward from Alexandroupolis Road, see section 10-234.

CHAPTER 8

TURKEY—CAPE ALUPO TO THE ISLAND OF SAMOS

8-1 ISLETS LYING WESTWARD OF SARIA.—Islets are located in six different positions in the area from 17 to 47 miles westward of the island of Saria, which, together with the islands of Scarpanto, Kaso, and Rhodes, is described in Pub. 55, the Mediterranean, Volume IV.

8-2 Stakida (Stacckida) Islet (Nisos As-takida) ($35^{\circ}53' N.$, $26^{\circ}51' E.$, *B. A. Chart 2824*), the largest of a group of four islets located 17 miles westward of Saria, has a height of 456 feet. Seal Islet and Stakida Pulo lie, respectively, 1 mile north-northeastward and 400 yards southward of Stakida Islet, while the third islet lies close northward of the western entrance point of the inlet indenting the northern side of Stakida Islet.

During winds from the southeastern and southwestern quadrants a small vessel can moor with her stern as close as 60 yards to the shore in the above-mentioned inlet. The depths in the middle of the inlet are great, but the holding ground is good. During northerly winds, fishing boats and small sailing vessels seek shelter under the southern side of the islet.

A light is shown on the western side of Stakida Pulo.

8-3 Unia Nisia (Nisos Iounia) (Ounianisia) ($35^{\circ}49' N.$, $26^{\circ}29' E.$, *H. O. Chart 4193*), located 17 miles west-southwestward of Stakida Islet, are two islets lying close together. Sometimes they are visible from a distance of 20 miles, and on certain bearings they have the appearance of two hummocks. A light is shown on the northern extremity of the eastern islet.

Kamila Nisi or Khamilo Nisi, also known as Isolotto Kamiloni, lies $10\frac{1}{2}$ miles west-northwestward of Unia Nisia. This yellowish, low, rocky islet with some scattered bushes on it is visible from a distance of 15 miles with a clear atmosphere. The islet can be approached from the east and affords shelter from northerly and northwesterly

winds. A light is shown on Kamila Nisi.

Avga Nisi (Ayga Nisi) (Isolotto Ovo) (Nisos Avgo) (Avgonisi) is a small islet located 6 miles north-northeastward of Unia Nisia.

A bank, with a depth of 16 fathoms, was reported (1962) to lie about $3\frac{1}{2}$ miles north-westward of Avga Misi. A narrow bank, with possible shoal water, has been reported extending northwestward and southeastward of Avga Misi.

Karavi Nisia (Isolotti Caravi) (Nisos Karavonisia) located $5\frac{1}{2}$ miles north-northwestward of Avga Nisi, are two high, steep, and inaccessible islets.

The above two islets are good radar targets and show up well at 12 miles, under normal conditions.

8-4 Sophrana Nisia (Isolotti Zafrana) (Nisidhes Zaforas) (Nisidhes Sofrana) a group of two islets, lie $2\frac{3}{4}$ miles north-northwest of Karavi Nisia. Megalo Sophrana (Megalo Zafrana), the northern and larger islet, has a height of about 600 feet; and Makri Sophrana (Macri Zafrana), the other islet, is separated from it by a deep channel, in the middle of which rises a large rock.

A light is shown from the northwestern extremity of the northern islet.

The small inlet in the southeastern part of Megalo Sophrana affords shelter to small vessels from winds between northwest and southwest. The depths in the center of this inlet are rather great, and the holding ground is poor. Vessels should strengthen their moorings by running hawsers to the shore. At the head of the inlet project the masts of a sunken sailing vessel.

Caution.—The following islets have been reported (1963) to be one mile 080° from their charted positions; Unia Misia, Avga Nisi, Karavi Nisia, Megalo Sophrana, and Makri Sophrana.

8-5 STAMPALIA ISLAND (NISOS AS-TIPALAI) (*southern extremity, $36^{\circ}30' N.$, $26^{\circ}21' E.$, H. O. Chart 4137*), located 26

miles northward of Sophrana Nisia, is the westernmost island of the Dodecanese. Having a length of $9\frac{1}{2}$ miles in a northeast and southwest direction and a maximum width of $7\frac{1}{4}$ miles, this island, most irregular in shape, consists of two large rocky masses connected by a neck of land having a minimum width of about 100 yards in one place. The southwestern rocky mass attains a height of 1,581 feet in Monte Vardia, and the northeastern rocky mass attains a height of 1,201 feet in Monte Castellana (Castelano). The coasts of the island are generally high and form numerous bights, the principal one being Port Maltezana.

The principal products are grain, grapes, and herbs; sheep are raised. There are a few springs on the island.

8-6 Southwestern side of Stampalia Island.—Kavo Khilus (Capo Chilo), the southeastern point of the southwestern part of Stampalia Island, is the extremity of a small rocky peninsula, 249 feet high. From Kavo Khilus the irregular, steep-to, rocky coast backed by mountainous land trends westward and northward for a total distance of 8 miles to the islet of Katargari. The coves indenting this part of the coast have sandy beaches.

Katargari (Catergari), a small islet 105 feet high, is separated from the coast by a channel with a width of 370 yards and a depth of $3\frac{3}{4}$ fathoms. A rock above water lies close northwestward of this islet, which also has some rocks above water close off its southwestern extremity. About 300 yards northward of Katargari is another rock above water.

Kutsimi (Cutsimi) Reef, consisting of two rocks above water and one with a least depth of 6 feet, extends 600 yards westward from a projecting point about midway between Katargari and Liani Point, the northwestern extremity of Stampalia. Kutsimi Shoal

(Banco Cutsimi), on which the least depth is $5\frac{1}{4}$ fathoms, lies 1,200 yards west-northwestward of the extremity of Kutsimi Reef. Panormos Nisi, a small round islet, lies 600 yards north-northeastward of Liani Point.

8-7 Pontikutha (Nisos Pondikousa) (Isolotto Ponticusa), an islet 738 feet high, lies 1.4 miles westward of Kavo Armenoi (Punta Armeno), the projecting rocky point about midway along the western coast of Stampalia Island. This islet is steep-to except for some shoals extending a short distance from its northeastern side.

Ktenia (Vrakhos Ktenia) three rocks above water, lie close together in a position 1 mile southward of Pontikutha.

Ophidusa (Nisos Ofidhousa) (Isolotto Ofidusa), an island having a length of 2 miles in a north and south direction and a height of 436 feet, is located 3.7 miles westward of Pontikutha. The high and rocky coasts are steep-to except for a shoal extending 300 yards westward from the western extremity of the island. On the eastern side of the island near its northern end are visible some ancient ruins.

8-8 The northwestern side of Stampalia Island is indented by a large bay having a width of $5\frac{3}{4}$ miles at the entrance and receding 4 miles in a southeasterly direction. This bay is divided into two bodies of water by Phokeo Nisia (Nisedhes Fokionisia) (Isolotti Fochionisia), a chain of three islets extending 2 miles in a northwesterly direction from the isthmus connecting the two high mountainous parts of Stampalia Island. Rocky shoals extend one-half of a mile northward from the extremity of the chain, and the chain, as well as the isthmus, is fringed by similar shoals. The passage separating the chain from the isthmus and the two passages through the chain are limited to boats and craft of limited draft.

Port Panormos, the principal cove indent-

ing the western mountainous mass of the island, is entered 1,600 yards eastward of Liani Point, the southwestern entrance point of the above-mentioned large bay. Exposed only to northerly winds, this cove has depths of 43 fathoms in the entrance, decreasing to $4\frac{3}{4}$ fathoms at the head.

Agios Andrea Bay (Baia di S. Andrea), having depths of 16 to $5\frac{1}{2}$ fathoms and open to the north, is the head of the body of water on the western side of Phokeo Nisia.

Seno di Vaie, the inlet forming the southeastern part of the body of water on the eastern side of Phokeo Nisia, is open to the northwest and has depths of 15 to 8 fathoms.

Port Vathy (Porto Vati) entered 1 mile northward of Seno di Vaie, is a land-locked basin extending 1 mile in an easterly direction. This basin has uniform depths of $5\frac{1}{2}$ to 5 fathoms, sand and mud, in its central part, but the entrance channel extending one-half of a mile in a northeasterly direction has in its northeastern part a bar with a depth of $12\frac{1}{2}$ feet. Only vessels with a draft of not more than $11\frac{1}{2}$ feet can cross the bar, but vessels with a draft of 13 feet could cross the bar by carefully sounding out a channel and marking it.

8-9 Outlying bank.—A bank with a depth of 40 fathoms was reported in 1940 to lie $6\frac{1}{2}$ miles northwestward of Kavø Phlutha (Akra Floudha) but its position is approximate.

The northeastern side of Stampalia Island from Kavø Phlutha (Capo Fluta), the northeastern entrance point of the large bay on the northwestern side of the island, trends 6 miles southeastward to Capo Pulari, the southeastern extremity of the northeastern mountainous part of Stampalia Island. This high, steep, rocky coast dominated by greater heights is indented by several inlets.

A light is shown from an iron tower with mast, 13 feet high, on Capo Pulari.

A light is shown from an iron lattice obelisk with hut, 19 feet high, on Kavø Phlutha.

8-10 SOUTHEASTERN SIDE OF STAMPALIA ISLAND WITH OFF-LYING ISLANDS AND DANGERS.—This side of the island between the southeastern extremities of the two mountainous parts of Stampalia Island is indented by several bays. Islets, rocks, and shoals lie on the bank extending about $3\frac{1}{2}$ miles southeastward from the northeastern mountainous part of Stampalia Island.

8-11 Baraka ($36^{\circ}35' N.$, $26^{\circ}26' E.$, *H. O. Chart 4137*), located 2 miles westward of Capo Pulari, is a roundish peninsula, 134 feet high, extending 1,200 yards southward from the island. Eastward of the peninsula is the fairly large and deep bay of Porto Santa Foca, while on its western side is the narrow and deep inlet of Port Agrilithi.

Baraka Xera (Secca Baraca), a small shoal with a depth of $2\frac{1}{2}$ fathoms lying 900 yards east-southeastward of the southeastern part of the peninsula of Baraka, occupies a position in the middle of the approach to the bay of Porto Santa Foca. This shoal is steep-to on its southern side, but 200 yards northward of it lies a $4\frac{1}{4}$ -fathom patch.

8-12 Kunupia (Nisos Kounoupoi) (Conopia), the southernmost and largest of the islands off the southeastern side of Stampalia Island, is located $2\frac{1}{4}$ miles southward of Capo Pulari. The island consists of a large northern part, 292 feet high, separated by a narrow sandy isthmus from a smaller southern part. A beacon is located on the island in a position about 700 yards northward of the sandy isthmus.

Kutzomiti (Nisos Koutzomiti) (Cuzzomiti), an island with a height of 210 feet, lies 1,200 yards northwestward of the northern part of Kunupia. Between these two islands lie four rocks fringed by shoals. Crondopulo Islet, the southernmost of the four rocks, has another rock close southwestward of it. Kutzomiti Rock (Banco Cuzzomiti), a patch with a depth of $7\frac{1}{2}$ fathoms,

lies one-half of a mile southeastward of the northeastern extremity of Kutzomiti.

8-13 Agia Kyriaki (Santa Domenica), an island, 69 feet high, fringed by a narrow rocky shoal, lies 1.4 miles westward of Kutzomiti. The southern side of the island is indented by a small cove, and a large rock above water with a shoal extending nearly 100 yards eastward from it lies close off the southeastern part of the island.

Kyriaki Shoals (Secche Santa Domenica) consists of a patch and a bank with a reported (1961) depth of $2\frac{1}{4}$ fathoms lying south-southeastward of Agia Kyriaki. Oxo Xera lies 1,200 yards southward of the large rock close off the southeastern part of Agia Kyriaki. Both the patch and bank extend 440 yards south-southeastward. A 7-fathom passage about 200 yards wide runs between these shoals.

To pass westward of Kyriaki Shoals, steer with the western extremity of Glinio Nisi bearing 335° and open westward of Agia Kyriaki. These shoals are covered by the red sector of the light located at the northern entrance of the landing place (sec. 8-18).

8-14 Konomato Xera (Secca Conomato) ($36^\circ 33' N.$, $26^\circ 25' E.$, plan on H.O. Chart 4153), a shoal with a least depth of $1\frac{1}{2}$ fathoms and a length of 200 yards, lies about 800 yards northeastward of the northeastern part of Agia Kyriaki.

To pass through the middle of the channel separating this shoal from the island, steer with the northeastern extremity of Glinio Nisi in range 323° with the southwestern point of Kondro Nisi. To pass northeastward of this shoal, steer 315° for the white obelisk on the northern shore of Port Maltezana.

Bogazen Xera, a small shoal with a depth of $2\frac{3}{4}$ fathoms, lies about 400 yards northeastward of the northeastern point of Agia Kyriaki. Two other patches with a least depth of $4\frac{1}{4}$ fathoms lie from 170 to 240 yards northeastward of Bogazen Xera.

To pass northwestward of Bogazen Xera, steer with the southern point of Kondro Nisi in range 048° with Turko Vigla Kavo, the western entrance point of Port Agrilithi.

8-15 Port Maltezana ($36^\circ 34' N.$, $26^\circ 24' E.$, plan on H. O. Chart 4153), located northward of Agia Kyriaki and on the southern side of the isthmus connecting the two mountainous parts of Stampalia Island, is fronted to the south by Kondro (Condor) Nisi, an island 292 feet high, and to the southwest by Glinio Nisi, an island 1,600 yards long in a north-northwestward and south-southeastward direction. The port is over 1 mile long in an east and west direction and has a maximum width of one-half of a mile. The depths in the central part are from 16 to 11 fathoms, sand and mud. The shores are fringed by shallow depths, and a detached shoal with a depth of $1\frac{3}{4}$ fathoms lies 200 yards southeastward of the eastern of two projecting points from the northern shore of the port. A white obelisk stands on the point, and a buoy marks the shoal.

A light is located on the eastern extremity of Kondro Nisi. It is shown from an iron tower 7 feet in height.

8-16 Entrances.—The western entrance located at the northern end of Glinio Nisi has its greatest depth of 14 feet between two large rocks located in it. This entrance is available only for small craft.

The middle entrance, called *Passaggio di Porto*, is between Glinio Nisi and Kondro Nisi. Being more than 200 yards wide, this entrance can be used by steamers of any draft. Vessels should keep in the middle of the entrance to avoid the shoals extending from the salient points of the island, especially the one with a depth of less than $4\frac{1}{4}$ fathoms extending 200 yards northwestward from the northwestern point of Kondro Nisi. A stranded wreck lies in *Passaggio di Porto* at its narrowest point in a position about 450 yards eastward of Glinio Nisi.

The eastern entrance, called *Passaggio di Vrissi*, on the northeastern side of Kondro Nisi is over 300 yards wide and very deep. It is the safest entrance into the port, especially for vessels coming from the east, but these vessels must take care to avoid Baraka

Xera and the shoal fringing the northern entrance point of the entrance.

8-17 Anchorages.—Vessels of deep draft can anchor with the white obelisk bearing between 320° and 010°, distant 400 yards. Small vessels can anchor closer to the shore.

During fine weather in the summer vessels can obtain temporary anchorage in the bay formed between Glinò Nisi and Makria Punta (Punta Lunga), 1 mile westward. The bottom is mud and sand, but the water is rather deep.

A mooring buoy is located about 1/3 mile west-southwestward of the white obelisk.

8-18 Livadhia Bay indents the eastern side of the southern half of the southwestern mountainous part of Stampalia Island. Forming the northern shore of this bay is a promontory, on which is built the village of Stampalia. The small bay on the northern side of the promontory is the skala (landing place) for the village.

Lights.—A light is shown on the northern side of the entrance to the skala.

A light is shown from a position about one-fourth of a mile within the southern entrance to Baia de Marmari, about one-half of a mile northward of the skala.

Anchorage.—Small vessels can anchor in a depth of 5½ fathoms at 300 yards from the head of the skala. Although the holding ground in this small bay is good, anchorage is not safe during fresh northerly or northwesterly winds, which cause squalls to descend from the surrounding heights. Larger vessels anchoring in depths of 6½ to 7 fathoms can ride only to a scope of chain between 25 and 35 fathoms, which is not sufficient during the squalls. Under such conditions vessels should seek anchorage in Port Maltezana.

8-19 Stampalia (Astipalaia) (36°32'30" N., 26°21'30" E., *H. O. Chart 4137*), the principal village on the island, has a stately medieval castle commanding a splendid view, and also in the village are numerous churches and chapels mostly built from the ruins of ancient temples. Water may be obtained from the locality of Murat, located near the sea about 2 miles from the skala of the village. The village has steamer service every 14 days with the other Dodecanese Islands, and motor boats make irregular trips to the islands nearby.

Radio.—A radio station is maintained.

8-20 SIRINA (AGIOS IOANNIS) ISLANDS lie from 9 to 20 miles southeastward of the islets along the southeastern side of Stampalia Island.

Sirina Island (Nisos Sirna) (*southern end*, 36°20' N., 26°42' E., *H. O. Chart 4193*), the largest one of the group, is 2½ miles in length in a north and south direction and attains a height of 1,087 feet. Deep water surrounds this island, which has a wild aspect.

8-21 Adalphae Islets (Nisidhes Adhel-foi) (Isolotti Adelfi), a group of three steep-to islets extending nearly 2 miles in an east and west direction, are located 4 miles northwestward of Sirina Island. The eastern islet is 597 feet high; the middle one, 266 feet high.

Goat Islet (Isolotto Goa), 36 feet high, lies 2½ miles eastward of the southern part of Sirina Island. Kid Rock, 10 feet high, lies about 300 yards southwestward of Goat Islet, which has a rocky shoal off its eastern side.

Tria Nisia (Tre Scogli), located from 2¾ to 4¼ miles southeastward of Sirina Island, have sufficient size to be considered as islets instead of rocks. A 9-fathom patch lies one-half of a mile north-northwestward of Mezzo, the northernmost islet, 134 feet high. Placida, the southernmost and largest islet, 249 feet high, affords shelter to small vessels in any kind of weather. A light is shown on this islet. Stefania, the eastern and smallest islet, has a height of 85 feet.

Wreck Rock (Scoglio Relitto), 10 feet high, lies $2\frac{1}{4}$ miles westward of Placida. As the name indicates, this rock has the appearance of a hull.

8-22 KANDELIUSA (NISOS ANTILE- OUSA) (CANDELIUSA) (*summit, $36^{\circ}30'$ N., $26^{\circ}59'$ E., H. O. Chart 4229*) located $15\frac{1}{2}$ miles northeastward of Sirina Island and 23 miles eastward of the islets along the southeastward side of Stampalia Island, is an isolated islet having a height of 344 feet at its northeastern end and extending 1 mile in a northeasterly and southwesterly direction. A low tower is located on the summit of a hill, 338 feet high, in a position near the middle of the southeastern side of the islet.

Light.—A light is shown from a white tower on a dwelling on the southwestern end of Kandeliusa.

A shoal with a least depth of 7 feet lies about one-fourth of a mile southwestward of Kandeliusa. A shoal with a depth of 5 fathoms was reported (1944) to lie about $\frac{3}{4}$ mile southwestward of Kandeliusa.

8-23 PISKOPIS ISLAND WITH ADJACENT ISLETS.—Piskopi (Piscopi) (Tilo) Island (*H. O. Chart 4229*), located 16 miles east-southeastward of the island of Kandeliusa and 10 miles northwestward of the islands off the northwestern side of Rhodes Island, extends $8\frac{1}{2}$ miles in a northwesterly and southeasterly direction, has a maximum width of 5 miles, and attains a height of 2,136 feet in Agios Elias (Monte Profeta Elia), located in the northwestern part. This island, mountainous and irregular in shape, is indented by several bays, none of which are fully sheltered from the wind. The northwestern coast consists of high cliffs, and numerous ruins are visible on the island. Between the two villages on this island is a cultivated plain, the products of which are grain, grapes, almonds, and figs.

Gaidaro Islet, separated from Spano Point (Punta Volcheri), the northwestern extrem-

ity of Piskopi Island, by a deep channel with a width of one-half of a mile, is steep and 512 feet high.

A light is shown on the northwestern extremity of Gaidaro Islet.

Two rocks above water lie close off the western coast of Piskopi Island in a position 1,400 yards southward of Spano Point.

8-24 Plagio Bay (Baia di S. Antonio), which indents the northern coast of Piskopi Island, has rocks fronting its eastern and western entrance points and its western shore. The Skala, a small boat harbor formed by two moles, is located at the eastern end of the head of the harbor. An isolated windmill, a good mark for vessels approaching the anchorage, stands near the shore 500 yards westward of the Skala.

Anchorage.—Vessels are able to anchor off the Skala in depths of 8 to 10 fathoms, poor holding ground. If the bay is calm, vessels can anchor closer to the land, a small vessel being able to anchor in a depth of $5\frac{1}{2}$ fathoms at 300 yards north-northwestward of the Skala. A swell attended by a current usually precedes northerly winds and renders difficult the departure of sailing vessels.

8-25 Tilos (Megalocorio), the most important of the two villages on the island, is built on the southern slope of a steep rocky hill located eastward of Plagio Bay. The village is not visible from the anchorage. A mail steamer calls every two weeks; telegraphic communication is available.

8-26 Livadia Bay, the northern of two bays indenting the southern half of the northeastern coast of Piskopi Island, is considered to be the safest of all the bays, although it is open to the northeast. The depths in the central part are considerable, decreasing rapidly to the narrow shoal fringing the shore.

Vessels can anchor in a depth of 11 fathoms, good holding ground, off a small port for coasters on the southeastern side of Livadia Bay. If the sea is calm, it is possible to moor with the stern to the mole enclosing

the port. A small vessel can anchor in the northern part of the bay in depths of 13 fathoms.

Landmarks.—A house with a tall tower and a church, both located on the western side of Livadia Bay, are conspicuous.

Beacon.—The eastern entrance point to Livadia Bay is marked by a beacon.

Submarine cables.—Two submarine cables, one from the island of Symi and the other from the island of Niseros, are landed at Livadia Bay.

8-27 Gaidaro Nisi and Prasuda are, respectively, an islet and a large rock lying near the coast of Piskopi northward of Livadia Bay. Both are fringed by shoals, and the passage between either of them and the coast is impracticable.

Piskopi Head (Capo Rematico), the eastern extremity of Piskopi Island, is steep-to. The land one-half of a mile inland of this cape attains a height of 1,620 feet.

A prominent microwave relay station is located about $\frac{1}{2}$ mile westward of Piskopi Head.

Anti Tilo (Askino Nisi), a narrow, steep-to, rocky islet with a height of 482 feet, is separated from the southeastern coast of Piskopi Island by a deep channel having a width of 1.7 miles. The passage between this islet and the island of Khalkia, located off the western side of Rhodes Island, is 8 miles wide and clear of dangers.

Kinduno Point (Cape Tracila), located $3\frac{1}{2}$ miles southwestward of Piskopi Head, is the southern extremity of Piskopi Island. A rocky shoal lies close off this point, and a shoal extends nearly 400 yards southward from Kavos Pelagusa (Punta Diacanici), the next point westward of Kinduno Point.

8-28 Megalo Bay, completely open to the southward, indents the southwestern side of Piskopi Island. Kamaro (S. Pietro) Bay is the western part and Eristos Bay is the northeastern part of this large bay. Depths suitable for anchoring are found in Eristos Bay, but the holding ground is poor at the

head of this bay, which here is bordered by shallow depths. During a calm sea small vessels have anchored in depths of more than $5\frac{1}{2}$ fathoms at 400 to 500 yards from the shore at the head of Eristos Bay.

Agios Andreas (Scoglio S. Andrea), a rock above water, lies close southward of the western entrance point of Megalo Bay.

8-29 **NISEROS ISLAND WITH ADJACENT ISLETS.**—Niseros (Nisiro) Island (*center, 36°35' N., 27°10' E., H. O. Chart 4229*), located $7\frac{1}{2}$ miles northwestward of Piskopi Island, is volcanic and almost circular in form with a diameter of 4 miles. In the western part of the island rises Monte Profeta Elia, 2,290 feet high, and among the lesser heights southeastward of this summit are two craters, named Alessandro and Stefano. The steep and inaccessible sides of the island are terraced to keep the earth from washing down in the rainy season. The almond groves and vineyards present a picturesque appearance from seaward.

Niseros Island is considered to be the most impracticable of the Aegean Islands from a navigational point of view, as it lacks bays; in fact, with the exception of the stretch of water in front of the village of Mandraki, it is not possible to anchor.

The main products are barley, grapes, almonds, olives, and vegetables. Two thermal establishments are maintained, as the island has some sulphur springs.

8-30 **Shoals.**—Shallow water, extending as far as 400 yards offshore, borders the northern and northeastern sides of Niseros Island.

A rocky shoal with a least depth of 3 feet lies 800 yards northwestward of Petrodi Point (Capo Crotiro), the most projecting point on the western side of the island.

Mandraki (Mandrachio), the landing place for Niseros Island, is located at the northwestern point of this island. The ruins southwestward of the village and the hydropathic establishments near the village are

good landmarks. A small harbor, formed by a curving mole having 15 feet off its head, offers shelter to small vessels. A light is shown from the molehead.

Anchorage is available in a depth of 16 fathoms about 270 yards off the small harbor.

8-31 The village of Mandraki, the largest of four settlements on Niseros Island, has a telegraph office, being connected by submarine cable with Kos Island and Piskopi Island. A mail steamer calls every week.

8-32 Skala (Palo), located on the eastward side of a projecting point, 1.7 miles eastward of Mandraki, is a small harbor enclosed by two moles. A conspicuous thermal establishment stands on the coast 600 yards eastward of the harbor. A church, which is conspicuous, is located about 200 yards west-southwestward of the harbor area. A light is shown from the eastern molehead. A light is shown on a projecting point about $\frac{1}{4}$ mile eastward of the harbor area.

During good weather in the summer vessels can anchor seaward of the harbor.

Pasha (Pascia) (Rakhia) Islet, 459 feet high, lies 2 miles westward of Niseros Island. A small, steep-to, rocky shoal, with a depth of 3 feet, lies about 900 yards northeastward of the eastern extremity of the islet. This shoal, difficult to distinguish, and the one off the western side of Niseros Island are the only two dangers in the channel separating Pasha Islet from Niseros. When standing toward Niseros Island, keep Strongyli Islet bearing 031° and open half its width of the northwestern extremity of Niseros Island until well northward or southward of Pasha Islet.

Perigusa (Rigusa) (Pergousa) Islet, located $1\frac{1}{4}$ miles northwestward of Pasha Islet, attains a height of 256 feet in its northeastern part. Rocks and shoal water extending as far as 300 yards offshore border the islet, and except for these dangers the channel separating these two islets is clear of dangers. The best scale Italian chart shows a least depth of 15 feet in the bight indenting the eastern side of the islet, where small vessels can obtain shelter from westerly winds.

8-33 Yali Island (Isola di Ialli), the southern extremity of which lies 1.8 miles north-northwestward of Niseros Island, has

a northeastern part, 590 feet high, and a southwestern part, 574 feet high, connected by a narrow isthmus. The irregular coast of this arid island is bordered by rocks and sandy shoals extending as far as one-half of a mile from the southeastern side. One of the sunken rocks which has a depth of less than 6 feet over it lies 1 mile north-northeastward of the southern extremity of the island and 550 yards offshore.

Agios Antonios (S. Antonio), a small islet, lies on that part of the shoal extending southward from the southern side of the northeastern part of Yali Island. A light is shown on the islet. A rocky shoal with a small rock above water on it lies 400 yards southward of Agios Antonios, from which it is separated by deep water.

A rocky shoal with a depth of less than 6 feet lies 800 yards southwestward of the southern extremity of Yali Island. The eastern extremity of the northeastern part of Yali Island kept open eastward of Agios Antonios leads eastward of this shoal.

The southeastern side of Yali Island affords shelter against northwesterly winds, which blow continuously against Niseros Island during the summer. Sailing vessels shelter here, awaiting a calm in order to approach Niseros Island. The approach at night is difficult on account of the rocks and shoals already mentioned.

A conspicuous overhead transporter extends southeastward into the cove to a position about $\frac{3}{4}$ mile westward of the southeastern extremity of Agios Antonios Islet. Six mooring buoys are located in the cove eastward of the transporter. A pylon (loading station) is located about $\frac{2}{3}$ mile westward of the southeastern extremity Agios Antonios.

Strongyli, a small circular islet about 413 feet high, lies $1\frac{3}{4}$ miles eastward of the northeastern part of Yali Island.

Current.—The current around Niseros Island and its adjacent islets is strong and has a variable direction.

8-34 SYMI ISLAND WITH ADJACENT ISLETS.—Symi (Simi) Island (*southern extremity, 36°32' N., 27°53' E., H. O. Chart 4303*), located 26 miles eastward of Niseros Island, lies in the approach to the Gulf of Doris and the Gulf of Symi, both of which indent the western coast of Turkey. The island is 6½ miles in length in a north and south direction, has a maximum width of 5½ miles, and attains a height of 2,020 feet in Monte Vigla. The irregular coast is indented by numerous bays and inlets.

This mountainous and arid island produces only small quantities of grain, grapes, olives, and tobacco. The inhabitants, which numbered about 4,150 in 1945, are mostly engaged in sponge fishing.

Nimos (Nimo) Island (*H. O. Chart 4227*), 1,250 feet high, may be considered as an extension of Symi Island, since it is separated from the northern extremity of that island by Stretto di Diapori, a channel with a width of only 160 yards and depths of 11 to 15 feet.

Skilo Rock (Scoglio Silo) lies close southward of the eastern extremity of Nimos Island. This rock is 3 feet high, but in stormy weather breakers cover the rock. Off the western side of Nimos Island and the northern part of the northwestern coast of Symi Island are three islets, Kondros (Condro), Plati, and Oxa (Ossia).

A light is shown on the northern end of Kondros.

8-35 Symi Bay (Baia di Simi), entered between the eastern point of Nimos Island and the northeastern point of Symi Island, indents the northern side of the latter island for a distance of 2¾ miles in a southwesterly direction. The southern entrance point is Kutsumba Point (Punta della Scoglia). The head of this bay is divided by a rocky projecting point into two arms, Nemborio Bay and Port Symi.

Light.—A light is shown from a white house, 10 feet high, located on Kutsumba Point.

Nemborio Bay (Baia di Emborio), the western and larger of the two arms at the

head of Symi Bay, has depths of 20 to 14 fathoms not far from its shores. During the winter the southeasterly sea along the eastern coast of Symi Island is deflected into this bay by Nimos Island. A good landmark at the middle of the southern shore is a Greek church with a semicircular arcade. Near the church stands a large tree.

8-36 Port Symi (Porto di Simi) (*H. O. Chart 4227*) the eastern of the two arms at the head of Symi Bay, is narrow and has in its entrance depths of 22 fathoms, decreasing to 5½ fathoms at a distance of 40 yards from the head. The shores of this port are quayed. A clock tower stands on the western entrance point, where a light is shown. A conspicuous tank stands on the eastern shore of Port Symi in a position about 700 yards east-northeastward of the clock tower.

Caution.—A rock having 17 feet of water over it lies about 100 yards northeastward of the lighthouse. Numerous other rocks and shoals dot the harbor and may not be found on the chart.

Anchorage.—Vessels of 200 to 300 tons anchor in the middle of the port and secure their sterns to the quays, which are equipped with bollards. During the winter this port is often full of small vessels. Vessels should not attempt to berth stern-to the quay without local knowledge.

During southeasterly winds the port is entered by a swell, which does not hinder mooring. Sometimes violent squalls blow from variable directions, those from the northeast rendering anchorage unsafe.

8-37 SYMI (SIMI) (*36°37' N., 27°52' E., H.O. Chart 4227*), the only inhabited center on Symi Island, is built around the port and backed by high land. Symi has a population of about 4,000.

Three 20-ton barges are available for handling cargo.

Supplies.—Water is scarce.

Communications.—A postal steamer calls once a week. There is a telegraph office, as a submarine cable connects this island with Rhodes Island and Piskopi Island. A public telephone line connects the town with Paniero Harbor, located at the southern end of the island.

8-38 Eastern side of Symi Island.—Pethi Harbor (Porto Pedi), entered about three-fourths of a mile southward of the southern entrance point of Symi Bay, is a narrow inlet extending 1 mile in a westerly direction and having depths of 19 to 5 fathoms inside the entrance. A rock that emerges on the northern side of the approach to the entrance renders access dangerous at night, when the visibility is poor on account of the high and steep sides of the inlet. A light is shown on the southern side of the entrance to Pethi Harbor. The town of Symi, some windmills, and a circular building are visible westward of the head of the inlet, where are also seen the remains of a massive wall and a castle. Along the beach at the head of the inlet is the resort village of Pedi.

From Pethi Harbor to the southern extremity of Symi Island, a distance of 5 miles, the eastern coast is indented by several bays separated from each other by high spurs. These bays are open to the eastward and have deep water in them.

Seskli Islet, 384 feet high, is separated from the southern extremity of Symi Island by a deep and clear channel with a width of 800 yards. Trambeto (Culundro) Islet lies close off the southern side and another islet lies close off the western side of Seskli Islet, the eastern extremity of which is fringed by rocks.

A light is shown from an iron lattice obelisk with hut, 19 feet high, on Trambeto Islet.

8-39 Paniero Harbor (Porto Panormiti) (*36°33' N., 27°53' E., (H. O. Chart 4303)*), located on the western side of the southern end of Symi Island, is an enclosed oval basin with a length of one-half of a mile in a northeasterly and southwesterly direction. Entered from the northwest by an entrance with a width of 120 yards, this basin has depths of $4\frac{1}{4}$ to $3\frac{1}{4}$ fathoms in its central

part and shoal water bordering the shore at its head. A windmill stands on the eastern entrance point, and at the head of the basin is the monastery of Panormiti, consisting of buildings connected together and surrounded by a wall. Submarine cables are landed at this basin. A light is shown on the north-eastern side of the entrance.

A light is shown occasionally from a small pier at the head of the bay.

Anchorage—Directions.—Paneiro Harbor affords shelter to small vessels from all winds, especially those from the southeastward. Although the entrance is open to the northwest, the sea from this direction does not enter the basin.

When coming from the southward, give Patos Point, the point projecting west-southwestward from the southern end of the island, a wide berth, as it is surrounded by rocks. Having passed this point, follow the coast until the entrance is open.

When entering the harbor, keep in the middle of the entrance and steer for the belfry of the monastery. When the western extremity of the wall around the monastery is in range with the lowest part of a depression backed by a hill, anchor in a depth of $3\frac{3}{4}$ to $3\frac{1}{2}$ fathoms. This position is a little southeastward of the charted anchorage symbol and is more sheltered.

8-40 Western side of Symi Island.—Both the southwestern and northwestern coasts on this side of the island are rugged and irregular, being indented by several bays. At the middle of this side of the island is an irregular projecting headland, from the extremity of which a chain of four rocky islets extends southwestward for a distance of $2\frac{1}{4}$ miles. The three northern islets, named Yavales (Diavates), lie close together and are surrounded by rocks. Sco di Passo, a small islet, lies about 1 mile farther northward. Marmara, the southern and outer islet of the chain, is sepa-

rated from the other three by a channel having a width of 800 yards and depths of 16 fathoms in midchannel. As rocks lie off the southern side of Marmara Islet, it should not be rounded too closely by vessels. Off the coast northeastward of the projecting headland are the islets of Oxa, Plati, and Kondros, already mentioned with Nimos Island (sec. 8-34).

A light stands on Marmara Islet.

8-41 GULF OF SYMI (SOMBEKI KORFEZI) (*entrance, 36°38' N., 28°00' E., H.O. Chart 4192*), the large gulf indenting the mainland of Turkey eastward of the northern half of Symi Island, recedes 6½ miles eastward and has several islands and bays at its head.

8-42 SOUTHERN SIDE OF THE GULF OF SYMI.—Cape Alupo (Kara Burun) (Alobi Burun) (36°33'N., 27°59'E., H.O. Chart 4192) is the southwestern extremity of a long and narrow peninsula projecting southwestward from the mainland of Turkey and separating the Gulf of Symi to the northward from Rhodes Channel to the southward. As a sunken rock lies close off Cape Alupo, vessels should not round the cape too closely.

Cape Alupo Light stands near the southern extremity of the cape.

Rhodes Island, located southward of Cape Alupo, and the coast of the mainland eastward of the cape, are described in H. O. Pub. No. 55, *The Mediterranean*, Volume IV.

8-43 Coast.—The coast between Cape Alupo and Cape Volpe, 3 miles north-northwestward, is rugged. About midway between these two capes is Orta Burun, a projecting point, on the northern side of which is the bay of Karamaki, with a small cove and some ruins at its head.

Cape Volpe (Kızıl Burun), the southern entrance point of the Gulf of Symi, should be given a fair berth, as it is fringed by shallow water, which suddenly deepens.

Islets—Coast.—Miniko (İncirli Ada) and Petro (Hayırsız Ada), two steep-to islets, lie, respectively one-fourth and one-half of a mile off the southern shore of the Gulf of Symi. Southwestward of Miniko, the western islet, the shore is indented by a small cove, off the entrance of which lies a rock above water with a sunken one outside of it. Farther eastward and near the head of the gulf is a group of three islets, Makri (Fenaket Adası), Plati (Yassı Ada), and Aulaki (Değirmenli Ada). To enter Saranta Bay, vessels can pass either northward or southward of this group. On the mainland southeastward of this group rises Mount Kara Eşek, 1,780 feet high, with some large ruins northward of it.

8-44 Saranta Bay (Söğüt Limanı), the head of the Gulf of Symi, is partially sheltered from the west by a tongue of land projecting southward from the northern side of the gulf and by Kamari Island (Söğüt Adası), connected to the extremity of this tongue of land by shallow water. At the head of the bay is the village of Saud (Saranta), and on a hill southeastward of the village are the ruins of an ancient castle. On the eastern side of Saranta Bay the shore in one or two places is bordered by shoal water. A sunken rock lies off the head of the bay, and others lie near the eastern side of Kamari Island at one-half of a mile northward of its southern end.

8-45 NORTHERN SIDE OF THE GULF OF SYMI.—Lebunia Island (Zeytin Adası), having a length of one-half of a mile in an east and west direction, lies close off the western side of Kamari Island, to which it is connected by shallow water. Off the western end of Lebunia Island lie two islets and a sunken rock with deep water near them. The bay close northeastward of the island is too deep for ordinary anchorage.

Vunos Island (Kızıl Ada), located about one-half of a mile northwestward of the western end of Lebunia Island, fronts the approach to Badalena Bay. Having a length of $1\frac{1}{4}$ miles in a north and south direction, this island is separated from the northern shore of the gulf by a narrow passage with depths of 2 to 3 fathoms and rocks on either side.

8-46 Badalena Bay (Boz Burun Limanı), receding $1\frac{1}{4}$ miles in a northerly direction and having an average width of one-half of a mile, is landlocked. The depths are rather great within the entrance, but northward of a small islet with ruins on it in the middle of the bay the depths decrease to 18 and 10 fathoms. Shallow water extends nearly 400 yards from a projection at the northwestern part of the bay. Some houses and a water mill stand on the eastern side of the bay, and northeastward of the head of the bay are the remains of an ancient fortress.

To enter Badalena Bay, round the southern end of Vunos Island, steer northward between the eastern entrance point and Agia Varvarah (Kilislice Ada), a small islet with ruins off the western entrance point, and finally pass eastward of the small islet in the middle of the bay. The water in mid-channel is deep, and the only danger to avoid is the shallow water in the northwestern part of the bay.

Khaskos (Tavşan Adası), a small islet 1 mile westward of the northern end of Vunos Island, is separated from the sandy beach on the mainland by a narrow passage with a depth of $1\frac{1}{2}$ fathoms.

8-47 Cape Apostoli (Boz Burun), located $2\frac{1}{2}$ miles westward of the islet of Khaskos, is the northern entrance point of the Gulf of Symi. This cape is the termination of an irregular peninsula, which, like the peninsula forming the southern side of the gulf, has numerous ruins on it. About 800

yards eastward of the cape is a small cove with a depth of 10 fathoms at its head. Rocks fringe both of the entrance points of this cove.

Age Latha, a dangerous patch of rocks, awash and steep-to, lies 700 yards southward of Cape Apostoli, the depths between them being 30 to 45 fathoms. The cape should be given a wide berth at night.

Mesia Bank, on which the least depth is 9 fathoms, lies $1\frac{1}{2}$ miles west-northwestward of Cape Apostoli.

8-48 GULF OF DORIS (HISAR ÖNÜ KÖRFEZİ) (*H. O. Chart 4192*) is formed between Dorian Promontory on the north and the mainland and Symi Island on the south, the latter lying in the approach to the entrance of the gulf. This large gulf is 14 miles wide between Injah Point and Cape Apostoli, the two entrance points, and an arm of the gulf recedes 10 miles in an east-northeasterly direction from Cape Apostoli.

Dorian Promontory, separating the Gulf of Doris from the Gulf of Kos, is an irregular tract of land extending 35 miles westward from the mainland. This promontory has a maximum width of $9\frac{1}{2}$ miles but is only one-half of a mile wide at Dorian Isthmus near the mainland and 1 mile wide at Datcha Bay. A high mountainous ridge trends along the promontory as far westward as Datcha Bay, where it descends, but then it again rises to the westward and forms a great mass with a height of 3,850 feet. The barren and reddish southern side of this promontory is indented by bays and coves, none of which recede as far as those on the southern side of the Gulf of Doris.

8-49 SOUTHERN SIDE OF THE GULF OF DORIS—Coast and islets.—From Cape Apostoli the southern shore of the gulf trends 7 miles east-northeastward to Losta

Bay. It is indented by several small bays, fronted by five islands or islets, known as Nisia Kalopothia.

Port Dirsek, the small bay entered 1 mile northeastward of Cape Apostoli, can accommodate a small-sized vessel, which would be completely sheltered. The shores of the bay are sheer rocky cliffs. There is a small village 2 miles from the bay.

Oneah (Kadı Adası), Ikinji (Topan Adası), and Mikale (Uzun Ada), the three western islets of Nisia Kalopothia, are small. Two rocks above water extend from the northern end of Oneah, and the point of the coast opposite this islet is foul; otherwise the water round these islets is deep. The passages between these islets, as well as between each islet and the coast are narrow.

Kaloyeri (Koca Ada) and Karamea (Karmeriye Adası), the two eastern and largest islands of Nisia Kalopothia, are over 1 mile in length and partially cultivated. The southwestern end of Kaloyeri and the point of the mainland opposite it are fringed by shoal water, but the narrow passage between them has a depth of 15 fathoms in midchannel. The southern side of Karamea is skirted by rocks, and the passage between this island and the mainland is deep and clear of dangers with the exception of a large rock above water lying within the eastern entrance of the passage. On the mainland between these two islands are some precipitous cliffs, the scenery here being grand and imposing.

8-50 **Losta Bay** (Deliktaş Bükü), entered 1 mile eastward of Karamea, recedes $2\frac{1}{4}$ miles in an east-southeasterly direction. Entered from this bay is Port Losta, an arm extending 1 mile in a southwesterly direction. On the northern side of the bay are some ancient ruins and the remains of a castle on a hill, while at the head of Port Losta are some houses, a water mill, and the ruins of another castle.

A rock with a depth of 3 feet over it lies a short distance off the western side of Port Losta in a position one-fourth of a mile southward of the western entrance point; and separated by a depth of 10 fathoms from the eastern entrance point of this port is a large rock with shallow water extending southward from it. A shoal with a depth of 10 fathoms was reported (1960) about $\frac{1}{2}$ mile southward of the western entrance point.

Anchorage.—Losta Bay can accommodate several medium-sized vessels. The depths are reported to be 17 fathoms, mud, good holding ground.

The following observations by a British naval vessel are quoted for information:

"A very strong wind from the southeast (force 7-8) blew for thirty hours. This caused the stern of the ship to ride unpleasantly close to the lee shore when riding to 7 shackles of cable. Owing to high land all round, this storm caused little disturbance in the bay, and boat traffic would have been possible all the time. The lowest barometer recording was 29.4 inches."

8-51 **NORTHERN SIDE OF THE GULF OF DORIS.**—**Arineh Bay** (Gulf of Renas) (Hisarönü Liman) (entrance, $36^{\circ}45' N.$, $28^{\circ}07' E.$, H.O. Chart 4192), an arm extending $3\frac{3}{4}$ miles in a northeasterly direction, is entered 1 mile northeastward of the island of Karamea. The inner half of the bay widens out and has smaller bays on either side. Depths suitable for anchoring can be found in any part of the bay. The town of Arineh (Hisarönü) is located $1\frac{1}{4}$ miles inland of the eastern shore at the head of the bay.

Koraka (Kargi Adası), a small islet with rocks off its northern side, lies close off the southeastern entrance point of Arineh Bay. Thiaspori (Lansa), another islet bordered by rocks, lies off the northwestern entrance

point and fronts a small bay to the north-westward of it. Sunk Rock, with a depth of 1 fathom over it, lies 600 yards south-south-westward of Pinnacle Point, the southern extremity of the tongue of land forming the bay mentioned with Thiaspori.

Pedalo Bay (Kapanca Liman), one of the bays indenting the inner part of Arineh Bay, is entered $1\frac{3}{4}$ miles northeastward of the southeastern entrance point. This bay has depths of 14 to 10 fathoms. Rocks skirt the western side of the entrance, and the head of the bay is a sandy beach.

Port Kiervasili (Keçi Bükü), a narrow inlet extending $1\frac{1}{2}$ miles south-southeastward, is located eastward of Pedalo Bay, from which it is separated by a tongue of land with rocks off its northern extremity. The inlet has an average width of 600 yards, but near its head it is further contracted by an islet connected to the western shore by shoal water. The depths decrease from 17 fathoms in the entrance to 5 fathoms near the head. Along the eastern shore, mainly a sandy beach fringed by shallow water, are scattered ruins, and northwestward of the high land of Arin Dağ are the ruins of an ancient temple and a theatre. The deserted village of Kiervasili, from where a road leads to Marmarice Harbor, is located three-fourths of a mile eastward of the lagoon on the eastern side of the head of the inlet.

8-52 Penzik (Pencik Bükü), the narrow inlet immediately westward of Arineh Bay, recedes $1\frac{1}{4}$ miles in a north-northeasterly direction up to the Dorian Isthmus. The entrance is fronted by Kophinitha (Dişlice Adası), a small islet with a reef extending 300 yards northward from it. The depths decrease from 15 fathoms in the entrance to 2 fathoms at the head, but close off the western shore, about two-thirds of the way in, is a sunken rock. There is a depth of 15 fathoms in the narrow passage between Kophinitha

with its reef and the western side of the inlet, and the wider passage on the eastern side of the islet is clear of dangers with the exception of Sunk Rock, already described with Arineh Bay.

Penzik is reported to be larger than charted. When entering, vessels should pass eastward of the islet Kophinitha, and keep to the eastern side of the bay.

8-53 The coast from Penzik to Kochini Bay, 6 miles westward, is indented by Lintos Bay (Lindos Bükü), Vathis Bay (Göktaş Bükü), and several smaller bays. Lintos Bay, 1 mile westward of Penzik, has a 1-fathom shoal lying close off its eastern entrance point, and 1,200 yards southwestward of this same entrance point lies a 5-fathom shoal.

8-54 Kochini Bay (Koruca Bükü) (Kato Armakitha), 1 mile wide at its entrance, recedes nearly 1 mile in a northerly direction. Orta Point (Noragan Burun), the eastern entrance point, has a shoal extending a short distance from it, and in the eastern part of the bay is a group of islets or rocks, steep-to, which contracts the width of the inner part of the bay to about one-half of a mile. Anchorage may be obtained in a depth of 15 fathoms, mud, in the northwestern part of the bay, or still farther in of the charted position if necessary.

8-55 Ano Armakitha Bay (Ciftlik Limanı), receding 1 mile northward immediately westward of Kochini Bay, is separated from that bay by a small promontory connected to the mainland by a sandy isthmus. The extremity of this promontory is called Kara Point (Adatepe Burnu). The sandy beach at the head is bordered by shallow water, shoals extend about 400 yards from the eastern shore, and a small islet surrounded by shoal water lies close off the eastern entrance point. A stream of good water discharges at the head of the bay.

Gull Rock (Kara Inciz Ada), 8 feet high, lying 4 miles westward of Ano Armakitha Bay, is the outermost of some rocks and islets extending $1\frac{1}{4}$ miles along the coast that consists of rocky points with ancient ruins in their vicinity. Terminating these rocks to the west and lying at the eastern end of Datcha Bay is Alak Adası (Yassı Ada), a small islet also fringed by rocks.

8-56 Datcha Bay (Reşadiye Körfezi), located westward of that part of the coast bordered by the above-mentioned rocks, has a sandy shore trending first westward and then southwestward to a point with ruins on it. This bay, 4 miles wide at its entrance, has depths of 25 to 6 fathoms, mud, affording anchorage sheltered from southwest, through north, to east.

The Dorian Promontory at this bay is only 1 mile wide. Mount Emeji (Emecik Dağ), rising to a height of 2,440 feet northeastward of the bay, is the culmination of the mountain range along the eastern part of the promontory. The land in the vicinity of the bay is partially cultivated, and one of the streams discharging into the bay has good water.

8-57 Chatalia Bay (Reşadiye Limanı) indents the coast immediately southward of the southwestern limit of Datcha Bay, the previously mentioned point with ruins on it. Fronting this bay and located three-fourths of a mile southeastward of the point with ruins is Ata (Plati), a small islet rising up from deep water. The town of Datcha (Reşadiye) stands on rising ground $1\frac{1}{2}$ miles northwestward of the bay, and at the head of a small cove in the southern part of the bay is a customhouse. Small vessels can anchor off this small cove.

A light is shown from a concrete tower on Ata.

Injah Point (Ince Burun) ($36^{\circ}39' N.$, $27^{\circ}-41' E.$, H. O. Chart 4192), located 4 miles

southward of Chatalia Bay, is the western entrance point of the Gulf of Doris. This point, a narrow and steep-tongue of land, projects one-half of a mile southeastward from the mountainous mass of land forming the western part of Dorian Promontory.

A light is shown from a white concrete tower, 26 feet high, on Injah Point.

8-58 SOUTHERN AND WESTERN SIDE OF THE WESTERN PART OF DORIAN PROMONTORY.—The coast (H. O. Chart 4192) from Injah Point to Cape Palamida (Palamut Burnu) (Divan Burun), 10 miles westward, is indented by several bights, and some of the projecting points are fringed by rocks. The highland along this coast reaches an elevation of 3,850 feet at 3 miles inland.

Baba Island (Bük Ada), located $1\frac{1}{4}$ miles northeastward of Cape Palamida, is steep-to except for a sunken rock off its southern end.

Epano Georgios, the bight in the coast northward of Baba Island, has a beach on its northwestern side. During northerly winds vessels frequently anchor in depths of 10 to 17 fathoms, mud and sand, between this beach and the island.

8-59 Cape Krio (Kriyo Burnu) (Deveboynu Burun) ($36^{\circ}41' N.$, $27^{\circ}22' E.$, H.O. Chart 4229) is located $5\frac{1}{2}$ miles west-northwestward of Cape Palamida, the intervening coast having one projecting point, named Dava Point (Deve Burnu). This cape, together with Tekir Point $1\frac{1}{2}$ miles northward of it, forms the western termination of Dorian Promontory. The cape from a distance looks like an island, being connected with the mainland by a low and narrow isthmus. The sides of the cape consist of steep cliffs, and the promontory 2 miles inland attains a height of 1,810 feet. Although the water in the vicinity of the cape is deep, two uncharted rocks, seen when a vessel is approaching

from the southward, lie close off the cape. The largest rock is 33 feet high, while the smaller one, 3 feet high, has a staff on it.

A light is exhibited from a white tower near a dwelling on Cape Krio.

8-60 Small harbors.—In ancient times artificial arbors were constructed on both sides of the isthmus connecting Cape Krio to the mainland. Trireme Harbor (Küçük Liman), the northwestern one, is small and shallow, the entrance being 26 yards wide and having depths of 4 feet.

Port Phriano (Büyük Liman), the southeastern harbor, is larger and deeper, the outer part having depths of 12 to 5 fathoms, but the inner part being shallow. This harbor was once protected by two substantial moles, which at present leave an entrance 130 yards wide. The southwestern mole is in a fair state of preservation, being well above water, and extends into a depth of 9 fathoms. The opposite mole has been demolished by the sea, but its remains may be traced by the wash and occasionally some parts show above the water. In case of necessity small vessels would find shelter in this small harbor. When entering, keep toward the southwestern mole.

The ruins of the ancient city of Cnidus, located northeastward of Port Phriano, are said to contain many examples of Greek architecture. The acropolis stood on a hill, 935 feet high, northeastward of the city.

8-61 Tekir Point (Tekir Burnu) (Iskandil Burnu), the northern of the two terminating points at the western end of Dorian Promontory, extends in a northwesterly direction and is steep-to.

Tekir Bay (Tekir Bükü), located between Tekir Point and Kuchi Islet (Kızılbaş Adası), 3 miles northeastward, indents the northwestern coast of the promontory for a distance of nearly 2 miles. Kuchi Islet is

separated from the northeastern entrance point by a deep and clear channel having a width of 400 yards. Shallow water of 2 fathoms fringes the northwestern end of the islet.

8-62 Mordala Bay, (H.O. Chart 4192) located about midway between Kuchi Islet and Mordala Islet, 3 miles northeastward, indents the northwestern coast of the promontory to a distance of one-half of a mile. The entrance, about one-half of a mile wide, has considerable depths, but depths of 7 to 8 fathoms are found one-fourth of a mile from the head of the bay. Shallow water extends about 200 yards from the shore, and close off the western entrance point is a rock above water.

Mordala Islet (Mersincik Adası), foul at its northwestern and southeastern ends, lies one-half of a mile off the coast. About 500 yards southeastward of the islet lies a large rock, above water, with deep water between them, and in the passage between this rock and the mainland are depths of 35 fathoms.

8-63 Mersinjik Bay (Mersincik Bükü), entered $1\frac{1}{4}$ miles southeastward of Mordala Islet, recedes one-half of a mile in a southerly direction. Within the sandy beach at the head of the bay is the village of Mersinjik (Mersincik), and farther in the background the mountains attain a height of 2,580 feet. On the western side of the bay is a small cove, where at times coasters wait for cargo from the neighboring villages.

8-64 GULF OF KOS (H.O. Chart 4192), also known as Kerme Körfezi or İstanköy Körfezi, takes its name from Kos Island, which divides the entrance into two channels of unequal width, the northern and narrower (İstanköy Kanalı) being about $2\frac{1}{4}$ miles wide, and the southern between Kos Island and the northwestern side of Dorian

Promontory being a little more than 7 miles wide. The gulf extends 48 miles in an easterly direction. The larger part is about 12 miles in width between the northern coast of Dorian Promontory and the mainland to the northward, but the inner part, called Giova Bay, for the last 6 miles is from 3 to $1\frac{1}{2}$ miles in width. The great depths in the gulf decrease toward the head, where it is possible to anchor.

Winds.—The winds in the gulf are irregular, but during summer land and sea breezes have been experienced.

8-65 SOUTHERN SIDE OF THE GULF OF KOS—Coast.—From Mersinjik Bay the coast trends $4\frac{3}{4}$ miles eastward to Keormen Liman (Körmen Limanı), a bay receding about 1 mile in a southeasterly direction. Cape Shuyun (Şahin Burun or İnce Burun) is the northern projection of the elevated land, 1,140 feet high, northeastward of Keormen Liman.

Between Cape Shuyun and a small cove, located 19 miles eastward the southern shore of the gulf is a succession of small sandy bays with low rocky points, and the land inland of these bays rises gradually to the mountainous ridge of the eastern part of the Dorian Promontory. Cape Emeji (Emecik Burnu), located about 9 miles eastward of Cape Shuyun, forms the extremity of a bold rocky elevation attaining a height of 2,440 feet in Mount Emeji (sec. 8-56).

Shoal.—Uch Chatal (Üç Çatal), located $3\frac{1}{2}$ miles eastward of Cape Emeji, are three points projecting from the mainland. About three-fourths of a mile eastward of the eastern point and 900 yards offshore lies a rocky shoal with a least depth of $1\frac{1}{2}$ fathoms. This shoal is 900 yards in length as defined by the 5-fathom curve.

Anchorage.—Although there is no anchorage along the coast between Keormen Liman

and Murdubek Bay, there are places close inshore where a steamer could anchor temporarily during offshore winds.

8-66 Murdubek Bay (Bordant Liman), the southeastern part of the Gulf of Kos, recedes 3 miles in an easterly direction and has a width of 2 miles. Morghébet Point (Mersincik Burnu), the northern entrance point of Murdubek Bay, is fringed by shallow water. Indenting the shore of this bay are several coves with foul entrance points, and the cove on the northern side of the narrowest part of Dorian Promontory can accommodate a small vessel. A sunken rock lies close northward of the eastern entrance point of this cove. Although Murdubek Bay is open to the westward, anchorage sheltered from offshore winds may be obtained near the head of the bay.

8-67 Coast.—From Murdubek Bay the whole coast northward and eastward is desolate, broken, and indented by numerous bays and inlets. Atmak Point (Çatalca Burnu), located 1 mile northward of Morghébet Point, is the western termination of an irregular tongue of land and is fringed by shallow water.

A shoal extending 300 yards in a northwesterly and southeasterly direction lies northwestward of Atmak Point, from which it is separated by a passage with a width of 200 yards and a depth of 10 fathoms in midchannel.

8-68 Between Atmak Point and Cape Koyun (Koyun Burun) (*B.A. Chart 1533*) $3\frac{1}{4}$ miles north-northeastward, the coast recedes eastward to form a bay. Yedi Atala (Yedi Adalar), a chain of four islets extending $1\frac{1}{2}$ miles northeastward of Atmak Point, lie in the southern part of this bay. The northern part of the eastern shore is a projecting point with an islet 400 yards westward of it. About 400 yards northward of this islet is a steep-to pinnacle rock

with a depth of 3 feet on it. This rock never breaks, and the depths 100 yards westward of it are 38 fathoms.

The area southward of the islets of Yedi Atala affords anchorage for several vessels. The best berth is in a depth of 15 fathoms inside the southwesternmost islet, and another convenient berth is inside the third islet from the northeast and off the entrance of a small cove having a width of 100 yards and depths of 13 fathoms. Vessels intending to use either of these berths can enter by the channel southward of the southwesternmost islet.

In the middle of the channel lies a rock with a depth of $2\frac{3}{4}$ fathoms. This rock can be avoided by keeping to the islet side of the channel, and that part of the channel southward of the rock is not recommended, as a shoal borders the southern shore. The channel between the second and the third islet from the northeast is narrow, and the reef extending from the southwestern end of the second islet can be seen. There is no ship channel between the southwesternmost islet and the one next northeastward of it.

Between Cape Koyun and Cape Balisu (Teke Burnu) (Ballı Su Burnu) (*H.O. Chart 4192*), $1\frac{1}{4}$ miles northward, the coast recedes 1 mile eastward to form a smaller bay than the one southward of Cape Koyun. Karamuk Rocks, which have a depth of less than 6 feet and occupy an area about 400 yards in extent, lie 500 yards west-southwestward of Cape Balisu, from which they are separated by depths of 7 fathoms.

Balisu Bay (Ballı Su Bükü), immediately northward of Cape Balisu, is open to the west, is shallow at its head, and does not afford anchorage.

8-69 GIOVA BAY (GOKOVA KÖRFEZİ) (CIVA KÖRFEZİ)—Coast (*H.O. Chart 4192*).—The Gulf of Kos at Lunguiz

Point (Longoz Burnu), the northern entrance point of Balisu Bay, narrows considerably, being here only 5 miles wide, and thence to its head, 14 miles eastward, takes the name of Giova Bay. Between Lunguiz Point and Port Deremen, 5 miles eastward, the coast forms three bays or inlets with patches of rock and shallow water fringing their salient points.

Guzlemek Cove (Gözleme Bükü), one of the above-mentioned three bays, is located $2\frac{1}{2}$ miles eastward of Lunguiz Point. Being only 300 yards wide in the entrance, this cove penetrates the mainland for a distance of three-quarters of a mile, trending first southeastward and then southwestward to form a curve. The cove has depths of 23 to 5 fathoms except off the western projecting point of the curve, and at the head, where there is a shoal bank.

Kem Rocks, above and below water, extend 600 yards in an east and west direction close off Çiçekli Burun, the point located 4 miles eastward of Lunguiz Point. These rocks are steep-to, the depths close northward of them being 37 fathoms. Located about 300 yards eastward of these rocks and lying in the middle of an entrance to a bay is a $1\frac{1}{2}$ -fathom shoal.

8-70 Port Deremen (Değirmen Bükü) (*plan on B.A. Chart 1533*), entered 5 miles eastward of Lunguiz Point, consists of two almost land-locked arms indenting the coast in a southerly direction. Port Gharb (Garp), the western and narrow arm, is three-fourths of a mile in length and has depths of 17 to 7 fathoms. This arm could be used for anchoring in case of necessity.

The eastern arm Port Deremen proper, is larger than the western arm and has coves on either side. This arm is over 1 mile in length and has depths of 17 to 5 fathoms, mud. In the approach to the entrance lie Pelid Islet and Dairi Islet (Kâ-

hya Ada), 150 feet high. A rock with a depth of $2\frac{3}{4}$ fathoms lies 200 yards southward of Pelid Islet, the northern one, and a shoal bank extends northward from Dairi Islet, but both of these dangers are out of the usual track into the port.

When proceeding into Port Deremen proper, keep in midchannel and anchor where convenient. The promontory projecting from the eastern side of the port should be given a berth of about 200 yards to avoid the spit extending from it.

The head of Port Deremen has much swampy ground with three streams discharging into it. The trees on the low ground between the hills near the mouths of the streams produce great quantities of gum storax.

8-71 Seyut Bay (Söğüt Bükü) (*H.O. Chart 4192*), located 1 mile east-northeastward of Port Deremen, has a semicircular shape with an entrance $1\frac{3}{4}$ miles wide. Kesr Cove, a small inlet, indents the coast immediately westward of the western entrance point, and in the southern part of the bay is another small inlet, where small vessels can obtain anchorage with good holding ground. Yelu Islet (Karaca Ada), located in the eastern part of the bay, shelters this latter inlet from northeasterly winds. A stream discharges at the head of the inlet, which must have been a port of some importance in former days, as a Roman paved road runs through the wooded marsh. It is reported that a stream of fresh water of sufficient quantity to enable small vessels to water quickly flows into the bay southeastward of the eastern point of Yelu Islet.

8-72 Coast and Shehir Oghlan Islands (*plan on B.A. Chart 1533*).—Balu Point (Karaca Burun), located 1 mile northward of Yelu Islet in Seyut Bay, is the western extremity of a tongue of land and has shal-

low water extending 150 yards from it. Between this tongue of land and the Shehir Oghlan Islands (Şehir Adalar) to the north-northeastward is a bay, extending three-quarters of a mile eastward and having a petrified beach at its head. Inland from the beach extends a little valley, uncultivated but rich in wild clover, myrtles, and other flowering shrubs. Although open to the west, this bay affords anchorage under favorable circumstances. The water is rather deep and the bottom is mud.

Castle Island, located one-half of a mile north-northeastward of Balu Point, is the southernmost and largest of the Shehir Oghlan Islands, being one-half of a mile in length in an east-and-west direction. From its western part a tongue of land projects northeastward, forming a snug but shallow bight on the northern side of the island.

Duck Rock, a rocky shoal partly awash, forms part of the shoal water extending 500 yards west-northwestward from the western end of Castle Island. A spit with a depth of $2\frac{1}{4}$ fathoms extends 100 yards from the southeastern point of the island, and shoal water of less than 3 fathoms extends from the northeastern point of the island for 150 yards in an easterly direction and 200 yards in a northerly direction, and in the latter direction depths of $3\frac{1}{2}$ fathoms extend 100 yards beyond those of less than 3 fathoms.

8-73 Snake Island, the northernmost of the Shehir Oghlan Islands, lies 200 yards northward of the northern part of Castle Island, from which it is separated by depths of $2\frac{1}{2}$ to $3\frac{1}{2}$ fathoms. The island has marks of a line of fortifications running around it and many remains.

A rocky shoal with a least depth of $2\frac{1}{2}$ fathoms and a length of 100 yards lies 550 yards northward of the northeastern point of Snake Island. The passage between this

shoal and the island is clear, the depths being 7 to 19 fathoms at 200 yards from the island.

Tomb Islet, so called from a single small white marble sarcophagus on it, lies 100 yards eastward of Snake Island.

The mainland abreast of these islands is also covered with walls, towers, broken sarcophagi, and shrubs. These ruins, as well as those on the islands, indicate that this locality must have been a place of some importance.

8-74 Anchorage — Directions.—Besides the anchorage already mentioned with the bay southward of Castle Island, there is good anchorage between Castle Island and Snake Island in a depth of 7 fathoms, mud, about 250 yards southwestward of Tomb Islet. The islet shelters the anchorage from northeasterly winds.

When coming from the northeastward and having reached a position three-fourths of a mile from the Shehir Oghlan Islands, keep Tomb Islet open its width westward of the point on the opposite coast, and proceed in nearly on this line, passing midway between the point and Tomb Islet. When the southern side of Snake Island is open southward of the southern end of Tomb Islet, steer for the northern end of Castle Island. Having passed Tomb Islet, edge to the southward and anchor.

If approaching the anchorage from the southward, keep near the mainland in order to avoid the spit at the southeastern point of Castle Island. Steer northward with the mainland aboard until nearly up to Tomb Islet; then proceed as before directed.

Vessels of moderate draft may enter also between Snake Island and Castle Island by keeping in midchannel, the shoalest water being $3\frac{1}{4}$ fathoms, sand. The water is clear and the bottom so distinct that the depth appears much less than it really is.

8-75 Port Gallipoli (Gelibolu Bükü) (plan on *B.A. Chart 1533*), entered three-fourths of a mile eastward of Snake Island of the Shehir Oghlan group, recedes over 1 mile in an east-southeasterly direction and has depths of 23 to 7 fathoms. About 600 yards off the head of the bay is good and secure anchorage in a depth of 12 fathoms, mud. Through the low alluvial soil at the head of the bay discharge two streams, near the mouths of which oysters are plentiful. The water in the streams is not fresh near the mouths. On either side of the low ground is a conical hill, surmounted by the remains of an ancient fort.

Bekchi (Bekçi) Islet lies 300 yards westward of the eastern entrance point of Port Gallipoli. The passage separating the islet from the point has a least depth of 6 fathoms in midchannel. A rocky spit with general depths of 3 to $4\frac{1}{2}$ fathoms and a $1\frac{3}{4}$ -fathom and a $2\frac{3}{4}$ -fathom head near its extremity extends 600 yards westward from the islet. When entering the port, keep the southwestern shore aboard, as the distance between this shore and the rocky spit is about 1,000 yards.

A reef with a least depth of three-fourths of a fathom and a length of 400 yards in an east and west direction, as defined by the 5-fathom curve, lies 1,100 yards northeastward of Bekchi Islet and 400 yards from the mainland. When approaching Port Gallipoli from the northeast, vessels can sight this reef by keeping a good lookout.

8-76 The Head of Giova Bay ($37^{\circ}05' N.$, $28^{\circ}21' E.$, *H.O. Chart 4192*) resembles a broad canal, being only $2\frac{1}{2}$ miles wide between Port Gallipoli and the base of the mountains on the northern side and decreasing to a width of $1\frac{1}{2}$ miles at Port Giova, located 5 miles eastward. There are no dangers with the exception of the reef lying northeastward of Port Gallipoli and the

shoal water bordering the low shore at the head. As the water shoals gradually, a vessel may anchor in any convenient depth, the holding ground being tenacious at Port Giova.

Almost all the heights surrounding the Gulf of Kos have marks of ancient fortifications. Altin Sevresi, an almost inaccessible summit, 1,500 feet high, located southeastward of Seyut Bay, has the ruins of a large fort on it. On the elevated plains which lie among the mountains in this direction are occasionally seen numerous flocks and herds, driven here during the dry season when pasturage fails in the lower country. In the mountains and ravines on both sides of this part of the gulf wild beasts are still numerous.

8-77 Port Giova, which is the northeastern part of the head of Giova Bay, has on its shore the remains of buildings and fortifications, probably the ancient town of Bargasa. As a paved road leads to Marmarice, it appears to have been a place of some importance. The present village is named Iskele. Located on the northern shore, this village has two small piers with a depth of 12 feet alongside. Vessels up to 200 feet in length can berth easily as the shore is steep-to. Ore is exported from this port, but only one vessel at a time can moor off the port for loading. A small boat lies off the port and indicates where the first anchor shall be dropped; both anchors are used, with 60 fathoms on each chain in 7 to 8 fathoms of water. Quarter stern lines are secured to shore bollards to limit the vessel's swing from the 160° heading. When moored, the vessel's stern will be about 160 to 175 feet from the shore. Barges loaded by conveyor belt from the shore transport ore in drums to the vessels side for handling. It was reported (1958) that foul ground is located under the wooded cliff on the eastern side of the harbor. There are numerous fresh water springs in the vicinity. Small quantities of drinking water are available. The Kadin River, discharging on the eastern side of the port, receives several salt springs in its passage to the sea, and these, mixing with the fresh water, cause a rank and unhealthy

vegetation around the islet in the entrance. Because of the germs from this vegetation, the inhabitants abandon the area for a certain time each year.

The plain of Giova is only partially cultivated. The principal exports from this port and the surrounding country are ore, valonia, corn, timber, gum storax, and honey. A few fowls are the only provisions procurable.

8-78 The northern shore of Giova Bay from Port Giova as far westward as Keramos Bay rises precipitously from the water to great heights, being covered with bright verdure and crowned with forests of oak, pine, and elm. Having towering rocks and intersected by deep ravines, the haunt of wild beasts, this side of the bay has the appearance of primeval grandeur not often seen and forms a strong contrast to the land on the opposite side of the bay, where the hills are of a softer aspect and a more moderate elevation.

Cape Akbuk, 10½ miles westward of Port Giova, is the termination of a promontory extending 1½ miles southeastward from the coast. Mount Keranda (Keren Dağ), located 2½ miles northeastward of the cape, attains a height of 3,160 feet.

8-79 Akbuk Bay, formed between the northeastern side of the promontory and the mainland, affords sheltered anchorage in the northern part of its head, where the depth is about 14 fathoms, sand and weed. The southwestern part of the head is shoal and rocky. On the western side of the promontory is the smaller bay of Tcham Altee (Çam Alti), open to the south and having a beach at its head.

Keramos Bay (Çam Alti Bükü) is entered 6 miles westward of Cape Akbuk. The intervening coast is steep-to and nearly straight, the land rising from the sea to heights of 1,870 feet. The bay affords anchorage near the shore, the depths being 17 fathoms, stiff mud, at 600 yards offshore. The southern extremity of Cape Akbuk should be kept in range or just open of a bluff 2½ miles eastward of the bay. Close off this bluff lies a small rocky islet.

8-80 Keramos Point (Kerme Burnu) is the southwestern extremity of a small plain forming the western side of Keramos Bay. This point should be given a berth of one-half of a mile, as the water around it shoals suddenly. Vessels may anchor in the bight westward of the point, but here they are not so well sheltered as in Keramos Bay. Oren Point (Sancak Burnu), the southeastern extremity of this flat plain, is steep-to.

A light is shown on Oren Point.

8-81 NORTHERN SIDE OF THE GULF OF KOS—Coast.—Between Keramos Point and Cape Vasilika (Domuz Burnu), 7 miles west-southwestward, the coast forms low shingle points with cultivated plains between them, the hills in the rear being well wooded and backed by high, mountainous land. A small village stands about 3 miles westward of Keramos Point; farther on, two large tanks, one at $3\frac{1}{2}$ miles and the other at 2 miles from Cape Vasilika, are conspicuous objects, and with their domes and white-washed walls contrast pleasingly with the dark foliage of the hills.

8-82 Vasilika Bay (Fesliğin Bükü), entered immediately westward of Cape Vasilika, recedes three-fourths of a mile northward to its head, which is bordered by shoal water. A shoal spit extends a short distance from the western side of Cape Vasilika, and another from the point next westward of the western entrance point. Ancient ruins are located on the northern and western shores, and on the former shore stands a village. The headland of Cape Vasilika is well wooded. The northeastern part of this bay affords well-sheltered anchorage for small vessels in a depth of 13 fathoms.

8-83 Alakishli Bay (Alakışla Bükü), open to the eastward is located 7 miles west-

ward of Vasilika Bay. The intervening coast between these two bays has several indentations and projecting points surrounded by rocks, and all along this coast are great quantities of ironstone. Hermo Islet (İki Kardeş Adası) lies 800 yards eastward of the southern entrance point, and between them is a shoal. On the northern shore of the bay are the ruins of a village. During offshore winds small vessels can obtain anchorage off the middle of a sandy beach. This bay is said to afford shelter from all weather.

8-84 Orak Island, about 1 mile in length in a north and south direction, lies $2\frac{1}{2}$ miles westward of the southern entrance point of Alakishli Bay. This island, together with an islet westward and another islet north-westward of it, fronts the bay of Kishle Buku (Kışla Bükü), the western part of which is formed by a tongue extending eastward and southward. Both of the islets are surrounded by shoal water. The western part of the bay has depths of 25 to 14 fathoms, but the holding ground is mediocre. This landlocked bay can accommodate several medium-sized vessels, and small craft can anchor at the head in a depth of 3 to 2 fathoms, sand. On the northern side of the bay are some ancient ruins and a tower.

Kara Ada, the island located 5 miles westward of Orak Island, extends $3\frac{3}{4}$ miles in a northwesterly and southeasterly direction. It lies parallel to the coast, and the narrowest part of the channel separating them has a width of one-half of a mile and a depth of 12 fathoms. Steamers may take this channel to and from Budrum Bay.

A rock and a small islet lie close off the southern extremity of Kara Ada. The island has evidence of ancient fortifications on its summit.

A light is shown from a white concrete tower 26 feet high, on the northwestern point of Kara Ada.

8-85 Budrum Bay (Bodrum Körfezi) (*37°01' N., 27°28' E., H. O. Chart 4254*), fronted by the northwestern part of Kara Ada, is $1\frac{1}{4}$ miles wide at its entrance between Khatar (Katar) Point on the west and Meshrik (Meşrik) Point on the east, and recedes the same distance in a northerly direction. Kalessi Point (Kale Burnu), located at the head of the bay, separates Kalessi Bay (Kale Koyu) on the east from Budrum Harbor on the west. The large Castle of St. Peter, built by the Knights of St. John, stands on Kalessi Point. Appearing white when the sun shines on it, this castle, together with the surrounding houses, groves, and gardens, presents a pleasing aspect from the distance. St. Georgio Point, the eastern entrance point of Kalessi Bay, is walled, the base of the wall being in the water. Within Kaplan Point, 400 yards southwestward of the entrance to Budrum Harbor, stands Kaplan Kalessi Tower, all that remains of the ancient fortress of Salmacis. Deguir Point is located 800 yards southward of Kaplan Point.

8-86 Dangers.—Sighi Shoals, a $2\frac{3}{4}$ -fathom and a $2\frac{1}{2}$ -fathom patch, lie from 1,000 to 1,350 yards southward of Khatar Point, from which they are separated by depths of 17 fathoms. Khatar Point is fringed by a reef, and close southward of this reef is a detached reef with a rock 1 foot high on it. Vessels should not pass between Sighi Shoals and Khatar Point. Uçan Ada, a small islet in İstanköy Kanalı, leads southward of Sighi Shoals when bearing 240° and open southward of Çarpan Adası; Kaplan Point bearing 000° and open eastward of Deguir Point leads eastward of Sighi Shoals.

A rocky patch with a least depth of $2\frac{1}{2}$ fathoms on its southwestern part lies 300

yards southeastward of Kalessi Point. This shoal is marked by a spherical buoy painted in black, white, and red horizontal bands.

The shores of Budrum Bay are bordered by a narrow bank. About 700 yards southward of Meshrik Point is a small rocky point with a shoal. Vessels using the southeastern approach to the bay must give this point a berth of at least 600 yards.

8-87 Anchorage.—Budrum Bay affords anchorage in depths of 9 to 10 fathoms, mud and weeds, with the southeastern angle of St. Peter Castle bearing about 033° , Kaplan Kalessi Tower, $303\frac{1}{2}^\circ$, and Deguir Point, 228° . Vessels can anchor farther out if desirable. The anchorage is protected to some extent from southerly gales by Kara Ada.

8-88 Budrum Harbor (*H.O. Chart 4254*) a circular basin about 700 yards in diameter at the head of Budrum Bay, is suitable only for small vessels, and is fast filling in. Southerly and southwesterly gales cause a heavy swell. A breakwater is on either side of the entrance. The deepest water is in about the center of the basin, but the best anchorage is a little to the westward, the bottom being weeds. The harbor is surrounded by a complete amphitheater of hills and is encircled by the remains of the ancient walls of Halicarnassus, on the site of which the modern town of Budrum stands. Entrance to the harbor is by a passage about 150 yards wide between the two breakwaters. A light is shown from the head of each breakwater.

8-89 Budrum (Bodrum) (*H.O. Chart 4254*) is an active town of 4,000 inhabitants. Figs and tobacco are exported in trading caiques. Meat, bread, and fruit are available, and the town has numerous wells. Coastal steamers call once a week, and telegraphic service is available to İzmir, Ankara, and İstanbul. A very rough road leads from Budrum to İzmir via Mugla.

The concrete pier near the customhouse on the eastern side of the harbor has a length of 90 feet, and a depth of 6 to 8 feet alongside its western side. A few small caiques are available for handling cargo at the anchorage.

Deratization facilities are available only for small vessels.

8-90 Kumbet Bükü (Gumbet Bay) (*37°01' N., 27°24' E., H. O. Chart 4192*) entered one-half of a mile westward of Khatar Point, the western entrance point of Budrum Bay, is open to the southward and has shallow water bordering its shores. The southern part of this bay affords anchorage in depths of 14 to 15 fathoms.

Çarpan Adası (Guirejik Island) lies close off the southeastern side of a tongue of land extending $1\frac{3}{4}$ miles southward from the mainland. The northern part of this tongue forms the western side of Kumbet Bükü. Between the southeastern side of the tongue and the northern end of the island lies an islet. Only small vessels could use the passage between the islet and the mainland, and the passage between the islet and Çarpan Adası is not navigable.

8-91 Petasa Bay and Bitez Bay.—Between Uzun Point (Ada Burnu), the southern extremity of the above-mentioned tongue of land, and Pide Burnu (Bitez Point) (Baglar Burnu), $1\frac{1}{4}$ miles westward, the coast recedes from $1\frac{1}{4}$ to $1\frac{1}{2}$ miles northward to form a large bay, which has shoal water bordering its shores. In the middle of this large bay lies Celebi Adası (Parthena Islet), and about midway between this islet and the northern shore is a mud bank with a depth of $4\frac{1}{2}$ fathoms. Visible on the eastern side of this large bay are a white cistern and a wall.

Bitez Bay, the part westward of Celebi Adası, affords anchorage in depths of 7 to 17 fathoms, good holding ground, with the northern end of Celebi Adası bearing 090° and the extremity of Pide Burnu bearing 185° . Three windmills stand on the crest of a hill at Bitez Bay, which has a small village. Petasa Bay, the northeastern part of the large bay, is frequented by small vessels, as here they are sheltered from any wind. Supplies and water are available at the small village at Petasa Bay; telephonic service is available to Budrum.

The small cove entered immediately westward of Pide Burnu has two small streams of water. The adjacent land is fertile and well-inhabited. At this cove stand two large palms.

8-92 The coast from Pide Burnu trends 3 miles southwestward to Koca Burun (Cape Petera), the northern entrance point of the eastern part of İstanköy Kanalı. Besides the small cove entered westward of Pide Burnu, this coast is indented three-fourths of a mile northward of Koca Burun by Aspat Bay, having irregular depths and an islet in it.

Aspat Rock, above water, lies 1,600 yards east-northeastward of Koca Burun. This steep-to rock has a depth of 20 fathoms close eastward of it, and close northwestward of it is a sunken rock with depths of 6 to 19 fathoms close-to.

8-93 İSTANKÖY KANALI (KOS CHANNEL) (*H. O. Chart 4237*), the western entrance to the Gulf of Kos is between the mainland on the north and Kum Point, the northern extremity of Kos Island, on the south. Although the channel is $2\frac{1}{2}$ miles wide, it has depths of 22 to 9 fathoms for only $1\frac{1}{2}$ miles of its width. The northern coast of Kos Island, part of which forms the southern shore of the channel, is low. Along the northern shore of the channel are several dangers and an islet, the descriptions of which follow.

Uçan Ada (Utchian Islet), about 200 yards in extent, is located 800 yards southward of Koca Burun, from which it is separated by depths of 10 to 18 fathoms. Shallow water extends 150 yards southward from the islet.

8-94 Magpie Rock, over which the depth is only 4 feet, lies one-half of a mile west-southwestward of Arkialla Point, the southern extremity of a tongue of land one-half of a mile westward of Koca Burun. Depths

of $4\frac{1}{2}$ fathoms extend 200 yards northwestward from the rock, while the remainder of the depths between the rock and the mainland are 7 fathoms.

The southern end of Kara Ada bearing 086° and open southward of Uçan Ada leads southward of Magpie Rock, and the islet of Chuka bearing 302° and well open southwestward of Pasha Rock leads southwestward of it.

A light is exhibited from a white tower, with dwelling, standing on Fener Burun (Hussein Point), the northern entrance point of the western part of İstanköy Kanalı.

8-95 Pasha Rock, which is just above water, lies 500 yards southwestward of Fener Burun. This rock is on a reef extending about 300 yards in a north and south direction and separated from the reef fringing Fener Burun by a narrow channel.

Koca Burun bearing 090° and open southward of Arkialla Point leads southward of Pasha Rock, while the summit of Çavuş Adası in range 336° with the eastern extremity of Karabakla Island leads westward of the rock.

The coast northward of Fener Burun is described in section 8-173.

8-96 KOS (COS) (COO) ISLAND (*H. O. Charts 4234 and 4237*), also known as İstanköy to the Turks, is located in the entrance to the Gulf of Kos, dividing it into two entrance channels of unequal width. İstanköy Kanalı, the western and narrower channel, has already been described, while the southern channel between Kos Island and the northwestern coast of Dorian Promontory is over 7 miles wide. Next to Rhodes this island is the largest and most fertile of the Dodecanese. It is 23 miles in length in a northeasterly and southwesterly direction, has an average width of $4\frac{1}{2}$ miles, but contracts to 1 mile in one place in its southwestern part. Extending along the greater part of the southern side of the island is a mountainous range, which attains a height

of 2,775 feet in Dikeo (Monte Dicheo), located $6\frac{1}{2}$ miles westward of the eastern end of the island. Toward the western part of the island the range changes into low and gentle sloping hills, but the island again becomes mountainous in its extreme western part. From the mountain range the land slopes gradually to a vast, fertile, sandy plain forming the eastern part of the northern side of the island.

The island has abundant vegetation, especially vineyards and orange groves in the flat and the hilly sections. Corn, tobacco, olives, and vegetables are also raised. Although the island has no streams, many springs furnish good water. In 1940 the inhabitants numbered 20,982.

8-97 Kum Point (Akra Standharion) (Kum Burnu) (Punta della Sabbia) ($36^\circ 55' N.$, $27^\circ 17' E.$, *H. O. Chart 4237*), the northern extremity of Kos Island, is low and sandy. As shoal water extends northward from the point, the 5-fathom curve being three-fourths of a mile offshore, vessels must give the point a wide berth when passing through İstanköy Kanalı. This point is barely visible from a northerly direction at night.

A light, located about 300 yards within Kum Point, is exhibited from an iron framework structure.

8-98 Kos Road, an open roadstead, is off the town of Kos built on the southwestern shore of a semicircular bay between Kum Point and Luro Point, $3\frac{1}{4}$ miles southeastward. This roadstead is well sheltered against northwesterly winds but is untenable during winds from the northeastern and southeastern quadrants. During southeasterly winds vessels should seek anchorage northwestward of Kum Point. Depths of 5 fathoms, good holding ground, are found 500 yards offshore. A good berth is 300 yards off the head of the concrete pier extending into the roadstead close southeastward of the ancient castle.

The governor's palace, a large three-storied building with a cupola surmounted by a flagstaff, is a good mark for approach-

ing the roadstead. The Church of Agnus Dei has a white belfry with a small green cupola, which is also a good landmark.

8-99 The inner harbor, a small basin, is located westward of the ancient castle. The entrance between two moles northwestward of the castle is 132 feet wide and has a depth of 13 feet. The maximum depth in the basin is 15 feet. The greater part of the southern side is quayed, has 12 feet alongside, and is equipped with mooring bollards. It was reported (1957) that the inner harbor was in the process of being dredged to 16½ feet and the inner harbor entrance to 19½ feet.

Wreck.—A dangerous wreck, with about 3 feet of water over it, lies sunk near the entrance to Kos Harbor, in position about 55 yards off the northeastern corner of the fort. It was reported (1957) that the remnants of the LST lies about 1,640 yards eastward of the port.

Lights.—Two lights, one on each side of the entrance to the inner harbor, are exhibited from stone columns at a height of 16 feet.

8-100 KOS (COO) (STANKO) (*36°54' N., 27°17' E., H. O. Chart 4237*), the main town on the island of Kos, has a population of about 9,852. In 1933 the town suffered a severe earthquake, which left only the modern quarter standing. The Governor of the Dodecanese Islands is represented by a Regent of the Government.

Pier.—The concrete pier southeastward of the ancient castle has a length of about 110 yards and a depth of 17 feet off its head. Barges and two small tugs are available for handling cargo at the anchorage. The quay in the inner harbor is equipped with a crane having a lifting capacity of 4 tons.

Repairs.—The Power Station can handle major machine repairs. A drydock services ships up to 200 tons capacity.

Supplies.—Provisions are available in limited quantities. Water is available; however, there are no facilities for delivery to ships.

Communications.—Steamers call. Besides being in telephonic communication with the other towns on the island, the town has telegraphic communication with the other Dodecanese Islands. Excellent coastal and inland roads are available.

Hospital.—The town has a small hospital.

8-101 Luro Point (Punta delle Forbici) (Psalidi Point), located 2½ miles eastward of the town of Kos, is the southeastern entrance point of Kos Road. Vessels passing eastward through Istanköy Kanalı and bound southward must remember that the point, being low and sandy, is difficult to distinguish at night and in foggy weather.

A light is shown on Luro Point.

Cape Phuka (Capo Foca) (Akra Ayios Fokas), located 2.2 miles south-southeastward of Luro Point, is the eastern extremity of Kos Island.

A light is shown from a hut with a skeleton obelisk, 20 feet high, on Cape Phuka.

8-102 Cardamena (*36°47' N., 27°09' E., H. O. Chart 4237*), is located 11½ miles west-southwestward of Cape Phuka. Well visible from seaward, this village consists of a line of houses near a sandy beach. Some mills stand on a projecting point near the village. Concrete huts indicate the place the submarine cable from Niseros Island is landed.

Coast (*H. O. Chart 4234*)—From Cardamena the coast trends 2 miles southwestward to Andemaki Point (Akra Khelona) (Punta Antimachia), and hence 6.3 miles westward to Paleo Kastro (S. Nicola), a small, high, rocky islet lying about 200 yards offshore.

8-103 Kamara Bay (Kolpos Kefalou) (Baia Camare), entered between Paleo Kastro and the promontory Mount Zeni (Monte Zini), 1,161 feet high, located 1.3 miles southward, recedes three-fourths of a mile in a westerly direction. The depths decrease rapidly and unevenly toward the shore. Violent northwesterly squalls descend into the bay from July through October, and during the winter vessels must be prepared to leave at the first sign of southeasterly or southwesterly winds.

Vessels can obtain anchorage at a distance of 600 yards off the head of the bay in 19 fathoms with Paleo Kastro bearing about 060°.

There is a breakwater in the southern part of Kamara Bay from the head of which a light is shown.

On the flat summit of a hill in the background and northward of an ancient castle in ruins is visible part of the village of Kephalo (Cefalo), numbering about 2,000 inhabitants engaged in agriculture. A conspicuous white barrack building stands at the foot of the hill. Provisions in limited quantities may be obtained at the village.

8-104 Western and northern coasts of Kos Island.—Krikelo Point (Punta Crichele), located $3\frac{1}{2}$ miles southward of Kamara Bay, is the southern extremity of Kos Island. From Krikelo Point the western coast trends first 4 miles north-northwestward and then $2\frac{3}{4}$ miles northward to Cape Daphni (Akra Dhafni) (Capo Coni). This stretch of the coast is fringed by shallow water extending a short distance offshore. At Cape Daphni the coast turns abruptly and trends $3\frac{1}{2}$ miles eastward to the narrowest part of the island; thence, with a curved outline having the convex turned to the northwest, the coast trends to Kum Point, the northern extremity of the island.

A submarine cable from Kalimno Island is landed near the village of Mastikhari, charted as Mastikhari Point on the northern coast of Kos Island. The landing place is indicated by several concrete huts.

8-105 Pserimos Channel (H. O. Chart 4237), having a width of $1\frac{3}{4}$ miles, separates Pserimos Island from the northern side of Kos Island. The northern coast of Kos Island is bordered by shoal water, which, abreast of Cape Russa, the southeastern extremity of Pserimos Island, extends nearly into the middle of the channel, the 5-fathom curve being $\frac{4}{5}$ mile offshore. A 16-foot patch lies on the outer part of the shoal area about $\frac{3}{4}$ mile offshore. Vessels should keep to the Pserimos side of the channel, where the water is deep. Anchorage is prohibited southward of Pserimos Island in a circular area with a diameter of about $1\frac{1}{2}$ miles.

A foul area is about $\frac{1}{3}$ mile southwestward of Cape Russa.

8-106 PSERIMOS (KAPPARI) ISLAND (H. O. Chart 4237), located northward of Kos Island from which it is separated by Pserimos Channel, is 4 miles in length in a northwesterly and southeasterly direction and attains a height of 879 feet in its northeastern part. The irregular coast line forms several bays.

8-107 Vasiliki Bay, the large bay indenting the eastern side of Pserimos Island, does not afford good anchorage, because violent northwesterly squalls descend from the surrounding mountains. Sikua (Lidia), a large rock above water with sunken rocks close off its northwestern part and depths of $4\frac{3}{4}$ fathoms as far as 240 yards southeastward from it, lies in the bay 800 yards southward of Vasiliki Point (Capo Lidia), the northern entrance point of the bay, as well as the northeastern extremity of the island. Also 400 yards southeastward of this same point lies a shoal with a least depth of $2\frac{3}{4}$ fathoms.

8-108 Cape Russa, the southeastern extremity of Pserimos Island, is the termination of a tongue of land projecting 1 mile southeastward from the main body of the

island. Teseremi Rock lies 1 mile westward of Cape Russa and 600 yards off the southern side of the island.

A light is shown from an iron pylon on the eastern extremity of Cape Russa. A wreck lies about $\frac{3}{4}$ mile southwestward of the light.

A foul area, with a radius of 400 yards, due to a sunken mine lies about 700 yards southwestward of Cape Russa.

Cape Sphuri (Capo Sfuri) is the southwestern extremity of Pserimos Island. About 400 yards northwestward of this cape and not far offshore lies Tathuro Nezgla (Scoglio Merminga), a rock above water.

Pseremo Cove (Cala di Pserimo), entered 800 yards northward of Cape Sphuri, recedes nearly the same distance in a northeasterly direction and affords good shelter to coasters. On the beach at the head of this small cove is built the village of Pseremo.

8-109 Plati (Mikro) Island, (*H. O. Chart 4234*), 1 mile in length in a north and south direction, lies one-half of a mile westward of the northwestern part of Pserimos Island. Across the channel separating these two islands is a shoal with depths of 3 to $5\frac{1}{4}$ fathoms. The irregular coast of Plati Island is fronted by rocks in places.

Nikrothikes (Nicrotikes), a small islet, is separated from the northern end of Plati Island by a channel with a width of 200 yards and a depth of $2\frac{1}{2}$ fathoms.

A light is shown on the small islet.

Kalimno Channel (Canale di Calino), between Plati Island on the east and Kalimno Island on the west, is $1\frac{1}{2}$ miles wide and free of dangers.

8-110 KALIMNO (CALINO) ISLAND (*H. O. Chart 4234*), the fourth largest of the Dodecanese Islands, lies northwestward of Kos Island and westward of Pserimos Island. This irregular shaped island indented by many bays has a main body about 6 miles across in any direction, and from this main body a peninsula extends $6\frac{1}{2}$ miles in a northwesterly direction. Plateaus extend

between the mountain chains, and the central chain has two peaks, Mount Parasiva (Monte Profeta Elia) being 2,228 feet high, and the other peak close southeastward of it being 2,175 feet high.

The principal products are corn, barley, figs, grapes, vegetables, lemons, oranges, and especially mandarins. The island has two torrents, active in the rainy season, some springs, numerous wells, and a hot spring. The inhabitants are mostly engaged in the sponge industry. Several cigarette factories are located on the island.

8-111 THE NORTHEASTERN AND EASTERN COASTS OF KALIMNO ISLAND are high and rugged. There are several inlets of little importance. The water is deep except near the salient points.

Port Vathi (Porto Vati) (*H. O. Chart 4234*), the middle of three inlets on the eastern coast of the island, is entered $1\frac{1}{4}$ miles southward of Khrison Spyleon (Punta Azzipa), the northeastern extremity of the island. This inlet recedes 1,400 yards westward, and on the sandy beach at its head are the houses of the village of Vathis (Vati). Behind the village and extending across the island between two mountain ranges is a plain covered with olive trees.

A light is shown from a position close southeastward of the village of Vathis.

Port Akti (Porto Atti) is the next inlet southward of Port Vathi, Khali Point (Punta Cali), the southeastern point of the island, is the termination of a peninsula forming the southern shore of the inlet. Sara Nisi, a small islet, lies nearly 400 yards northward of the northern side of this peninsula at its outer end.

8-112 THE SOUTHERN COAST OF KALIMNO ISLAND is irregular, precipitous, and steep-to. Two islets lie off this coast.

Port Kalimno (Porto di Calino) (*H. O.*

4154), a semicircular bight having a diameter of 1,600 yards and open to the south-eastward, is located 3 miles westward of Khali Point. At the head of the bight is a harbor for small vessels formed by a mole extending 325 yards northeastward from the southwestern shore and another mole extending 100 yards from the northern shore. Work was in progress (1967) along the southern mole northeastward of the new quay. Depths in the entrance are 4 fathoms, but inside the harbor are considerably less.

A light is shown from the head of the mole extending northeastward from the southwestern shore.

Anchorage.—Vessels can obtain anchorage in the entrance to Port Kalimno in depths of 12 to 20 fathoms, mud, sand, and weeds. The best berth is in a depth of 6 fathoms with the cathedral in range about 297' with southern mole head, distant 275 yards from the latter. Even this berth is not safe at times during the summer when northwesterly squalls descend from the surrounding mountains, and a vessel that must remain should use two anchors and have her engines ready.

In the harbor small vessels are moored with their sterns to the mole.

8-113 KALIMNO (CALINO) (36°57' N., 26°59' E., *H. O. Chart 4154*) is built around the harbor. There is a customhouse. The Italian Government is represented by a delegate.

Piers.—Two small piers with shallow depths alongside are located on the western side of the harbor. Lighters are available for handling cargo at the anchorage. Minor repairs can be made.

QUAY.—From about 120 yards southwestward of the head of the mole, that extends from the southwestern shore, a quay on the western side extends southwestward for about 240 yards, thence about 100 yards west-northwestward to the shore. Lighters are available for handling cargo at the anchorage. Minor repairs can be made.

Supplies.—Provisions in limited quantities are available.

Communications.—Steamers and coasters make regular calls. The town is connected by submarine cable with Lero Island and Kos Island.

Hospital.—There is a hospital with 100 beds.

8-114 Nera Islet and Agios Nikolaos (Saffo) (Saphonidi) lie off the southern coast of Kalimno Island. Nera Islet, separated from Kalimno Island by a channel with a width of one-half of a mile and depths

of 29 to 39 fathoms, is about 1 mile long in a northeasterly and southwesterly direction, and has shoal water bordering its salient points. Agios Nikolaos lies 1½ miles southward of Nera Islet, from which it is separated by great depths.

A light is shown from an iron obelisk with hut, 19 feet high, on the summit of Agios Nikolaos.

8-115 WESTERN SIDE OF KALIMNO ISLAND.—Linaria Bay, which opens to the northward of the southwestern point of Kalimno Island, recedes about 1,200 yards in an easterly direction. Frequent and rapid gusts of wind from the northwest or southwest render a stay in this bay dangerous, and during bad weather anchorage is not advisable. The village of Linaria stands at the head of the bay.

Agia Kyriaki (S. Domenico), a small islet, lies 1,200 yards westward off the northern part of Linaria Bay. The western side of the islet is steep-to, but the north end and eastern side have shoals and rocky ground extending from them. The channel which separates this islet from the island has a minimum depth of 15 fathoms in its middle.

Telendos Island, located three-fourths of a mile northward of Agia Kyriaki, is separated from the western coast of Kalimno Island by Telendo Channel, having a width of 800 yards and clear of dangers along its axis. This island, 2 miles long in an east and west direction, is 1,502 feet high and rocky. Rocks and shoals fringe the island in places, and 800 yards southward of the western extremity of the island lies the islet of Apano.

8-116 Argynondas (Arghinonda) (Argano) Bay, located at the southern end of the peninsula extending 6½ miles northwestward from the main body of Kalimno Island, recedes 1 mile in a southeasterly direction and has depths of 15 to 10 fathoms, mud, good holding ground, at 600 yards from its head. The northeastern shore in

places is fronted by rocks. The mountains on either side of the bay rise almost perpendicularly from the water to a maximum height of 1,936 feet, forming a ravine, through which, in the rainy season, a torrent discharges into the head of the bay.

Besides Telendos Island in the southwestern approach to the bay, Kalavros (Calavrò) Island, 308 feet high, lies in the northwestern approach. A $4\frac{1}{2}$ -fathom rocky patch lies one-half of a mile eastward of the southern end of Kalavros Island. About 800 yards northeastward of the northeastern extremity of Kalavros Island and 400 yards off the northeastern shore of the bay is a $2\frac{1}{2}$ -fathom patch.

Argynondas Bay is well sheltered from the northeast but is completely exposed to the southwest, west, and northwest. The southeasterly wind taking its course through the mountains blows here more violently than on the open sea. Also frequent and rapid gusts of wind from the southeast to the northwest, even the latter being engulfed in the bay with extreme violence, make anchorage unsafe during bad weather. Small vessels can anchor off the head of the bay in depths of 6 fathoms, mud. To use this anchorage, they should keep on the axis of the bay and steer for a white cubical house, clearly visible because it stands out from the village at the head of the bay.

8-117 Kephala (Cefala), located $1\frac{1}{2}$ miles northwestward of the entrance to Argynondas Bay, is a circular projection, 443 feet high, connected by an isthmus to the middle of the southwestern side of the peninsula extending northwestward from the main body of Kalimno Island. The intervening coast between the bay and this projection is fronted by rocks, which northeastward of Kalavros Island lie as far as 400

yards offshore. Close northeastward of the projection is a small bay, on the shores of which are the houses of the small village of Emporio (Boriò). Anchorage is prohibited in this bay.

Alexis (Alessi), a rock 59 feet high, lies less than 200 yards northwestward of the northern extremity of Kephala. A submarine cable from Lero Island is landed northward of Kephala.

Capo dello Stretto, the northernmost point of Kalimno Island, is located about $2\frac{1}{2}$ miles northwestward of Kephala, the intervening coast being steep and clear of danger at 200 yards offshore. Glaro and Nisia, two islets described with Lero Strait (sec. 8-126), lie northward of the point.

8-118 KALOLIMNO (CALOLINO) (*western end, 37°04' N., 27°04' E., H. O. Chart 4236*), an island nearly 2 miles long in an east and west direction, lies $3\frac{1}{2}$ miles northeastward of the southern part of the northeastern coast of Kalimno Island, from which it is separated by a deep channel. The coast of the island is uneven, the southern side being indented by several coves and the middle of the northern side being steep and rocky. A light is shown on the eastern extremity of the island.

Islets.—Plero, a small islet, lies 600 yards off the southern coast of Kalolimno Island, from which it is separated by depths of 10 to 29 fathoms.

Gargari, another small islet, lies 1.1 miles northward of the western extremity of Kalolimno Island, from which it is separated by a deep and clear channel.

The islets eastward of Kalolimno Island are described with the coast of the mainland in section 8-174.

8-119 LEVITHA ISLANDS.—Levitha (Levita) Island (*eastern extremity, 37°00' N., 26°32' E., H. O. Chart 4193*), the eastern and largest island of the group, lies 18 miles westward of Kalimno Island. Having a length of 4 miles in an east and west direction, this island with high, steep, and craggy sides attains a height of 550 feet in its western part.

Levitha Harbor, an irregular inlet indenting the southern side of the island to a distance of one-half of a mile, has depths of 15 to 2 fathoms. This inlet is completely sheltered but is rather narrow.

Elmino (Stenosi) Point, the southwestern extremity of Levitha Island, has a rocky shoal extending about 300 yards seaward from it.

Vathi (Vati) Bay, entered close northward of Elmino Point, recedes about 1 mile in an easterly direction. It is narrow and has irregular depths varying from 40 to 5 fathoms.

Nephri (Nefri) Point, the northern extremity of Levitha Island, is the termination of an irregular and narrow tongue of land. The point is fringed by rocks, and close off the western side of the tongue lies a large rock, the narrow channel between them having a depth of 2 fathoms. Other rocks and shoals extend 400 yards westward from this large rock, but elsewhere the water is deep.

A light is shown on Spano Point, the eastern extremity of Levitha Island.

It has been reported that Spano Point is a good radar target with an echo range of 13 miles under normal conditions.

8-120 Kinaros Island (*H. O. Chart 4153*), 1,050 feet high, the westernmost of the Levitha group, lies $5\frac{1}{2}$ miles westward of Levitha Island. The island is steep to except at its western extremity, where lie some submerged rocks. The southern coast is indented for a distance of 600 yards by Pnigo Cove, which has depths of 4 fathoms.

Laros Islet (*H. O. Chart 4193*), lies one-half of a mile eastward of Kinaros Island,

from which it is separated by depths as great as 67 fathoms. The northern and eastern sides of the islet are fringed by shoal depths extending offshore only a short distance.

Mavro Islets, two in number, lie midway between Laros Islet and Levitha Island. These two narrow islets, the summits of a submarine ridge, are surrounded by deep water.

8-121 LERO ISLAND (*southeastern point, 37°06' N., 26°53' E., H. O. Chart 4236*), located immediately northwestward of Kilimno Island, from which it is separated by Lero Strait, extends $7\frac{3}{4}$ miles in a northwest and southeast direction, has a maximum width of $3\frac{3}{4}$ miles, and attains its greatest elevation in Mt. Kalavati (Scumbarda), 1,073 feet high, rising in the southeastern end of the island. The coast of this mountainous island with short stretches of plateau is very irregular and forms numerous bays, some of which are well sheltered from three quadrants. Lero, as a matter of fact, is the best known of the Dodecanese Islands for deep, ample, and safe anchorage.

The island produces corn, barley, grapes, tobacco, olives, figs, and vegetables. Fish are abundant.

Winds.—During the summer the prevailing winds are from a northerly direction, especially from the northwest; southerly winds are rare in this season. Some days northeasterly winds are strong.

During the winter strong and very strong winds alternate, lasting several days with some calm intervals. The southeasterly winds, which are violent, are feared by sailing vessels and small craft. There even may be violent southwest gales, which, however, do not last long.

From the second half of September through the first half of November, when other areas have uncertain weather, tending toward bad, Lero Island enjoys calm weather with some slight breezes.

8-122 EASTERN SIDE OF LERO ISLAND.—Cape Panozimi (Punta Pasta di

Sopra) is the northeastern extremity of the island.

Alinda Bay (*H. O. Chart 4154*), a deep and spacious bay entered 1 mile south-southwestward of Cape Panozimi, recedes about the same distance in a westerly direction between Cape Aspro (Punta Santa Marina), the northern entrance point, and Punta Castello, the southern entrance point. The shore in places is bordered by rocks, and a detached rocky shoal with a least depth of $3\frac{1}{4}$ fathoms lies 475 yards south-southwestward of Cape Aspro. A short distance within the southern entrance point is a cove that forms the small harbor of Santa Marina, which has a breakwater and two piers. The depths are shallow at the heads of the piers, but close off the head of the southern pier are depths of 21 to 38 feet.

Lero, the main town on the island, is close southeastward of the port of Santa Marina and is built in a saddle between a hill surmounted by an ancient castle to the northeast and Monte Meraviglia to the southwest. Small villas along the southern and western sides of the bay give it a pleasant aspect.

8-123 Lights.—A light is shown from the northeastern entrance point of the port of Santa Marina.

A light is shown from the head of the pier in the port of Santa Marina.

Foul ground.—Foul ground extends 500 feet westward of a line drawn from Cape Aspro in a 165° direction to the shore. Another foul area extends from a point $\frac{1}{2}$ mile south-southwestward of Cape Aspro in a 199° direction for 900 feet.

A wreck lies about 800 yards west-southwestward of Cape Aspro.

8-124 Anchorage.—Alinda Bay affords anchorage in depths of 18 to 10 fathoms, but vessels are exposed to easterly winds. A good berth, even during strong northwesterly winds, may be obtained in a depth of 16 fathoms, sand and mud, about 400 yards north-northwestward of the shore in the

southeastern part of the harbor of Santa Marina.

In selecting a berth, it should be remembered that during fresh northwesterly winds a vessel can take a berth towards the port of Santa Marina, even though this berth is difficult to approach and the handling of cargo is difficult. Whenever it is deemed not convenient to remain at this berth during northerly winds, it is possible to anchor off the northern side of the bay, where it is sufficiently calm. During southeasterly winds vessels must use the anchorage at the port of Santa Marina.

A small vessel can moor with her stern to the small mole and with her bow pointing north-northwestward.

8-125 Panale (Pandeli) Bay (*H. O. Chart 4236*), located immediately southward of the promontory extending eastward from the southern side of Alinda Bay, affords shelter to small vessels against northerly winds. A vessel of limited draft can anchor 100 yards offshore in a depth of 8 fathoms, with the ancient castle northeastward of the town of Lero bearing 325° .

The coast from Panale Bay trends in a southeasterly and southerly direction to Theapori (Diapori) Point, the southeastern extremity of Lero Island. Fronting this section of the coast and lying at a distance of one-half of a mile offshore are the islets of Agia Kyriake (Santa Domenica) and Peganusa. A 7-fathom patch lies about 525 yards west-northwestward from the northernmost extremity of Peganusa, the southern of the two islets.

A light is shown on the northeastern extremity of Agia Kyriake.

8-126 SOUTHERN SIDE OF LERO ISLAND.—Lero Strait, which separates Lero Island from Kalimno Island to the southeastward, is between Velona (Gabbiani) Islet, located 200 yards southeastward of Theapori Point, and the islets of Nisia and

Glaro, connected by rocks and extending 1,400 yards northward of the northernmost point of Kalimno Island. The strait proper is 500 yards wide and has depths of 30 fathoms in its middle, while the channel on the northern side of Velona Islet has a minimum depth of 13 fathoms in its middle.

The strait proper is visible only from the west, and vessels coming from other directions must not confuse the channel (always well visible) northward of Velona Islet for the strait. Coming from the westward, steer for the middle of Velona Islet, keeping over to Lero Island, where the water is deep. When abreast of Trachili Point, alter course to the right to pass through the strait. Coming from the eastward, approach Velona Islet from the southeast by steering for Trachili Point. The white beacon on the point is a good mark for navigating the strait.

A light is shown on the northern end of Glaro Islet; this light marks the southwestern limit of Lero Strait.

8-127 Xero Kambo (Baia di Serocampo), the bay entered between Theapori Point and Trachili Point (Punta Marrodocampo), one-half of a mile westward, recedes 1,600 yards in a northwesterly direction. The submarine cable from Kalimno Island is landed in this bay.

Beacon.—A white masonry pillar, 10 feet high, stands on the southern summit of Trachili Point.

Cape Kalavati (Punta Scumbarda), the southwestern point of Lero Island, is located $1\frac{1}{2}$ miles westward of Trachili Point.

8-128 WESTERN SIDE OF LERO ISLAND.—**Angistro Point,** the southern entrance point of Port Laki, is located $1\frac{1}{4}$ miles northwestward of Cape Kalavati. The point is 150 feet high and steep.

Port Laki (Baia di Portolago) (entrance, $37^{\circ}07' N.$, $26^{\circ}50' E.$, H. O. Chart 4154), a safe and spacious bay, is entered between Angistro Point, a precipitous cliff, 150 feet high, and Punta Pernice, 600 yards west-northwestward. Located between two ranges

of hills, this bay recedes 1.8 miles in a northeasterly direction. The shore of the bay is rocky, and between the projecting points are shallow inlets with sandy beaches. The depths decrease gradually toward the head of the bay, and in places not far offshore are shallow depths over rock. The bay about 1 mile within its entrance widens out to form three coves, Seno di Gonia to the north, Seno di Temenia to the northeast, and Seno di Lepida to the southeast.

Seno di Gonià, the southern side of which is formed by a mole, has depths of 13 to 19 feet. Seno di Temenia has a least depth of 14 feet in its entrance, but half of this cove is shallow. Seno di Lepida (Lepetha Cove) has depths of 8 to 7 fathoms, mud, in its entrance.

8-129 Landmarks.—**Mount Konasmata (Patella),** northward of the entrance to Port Laki, has a reddish, long, flat summit, 813 feet high. **Mount Piana (Triad),** a light gray peak, 836 feet high, rises on the southern side of the entrance. **Mount Kalavati (Scumbarda),** a steep grayish mass covered with dark vegetation, is located three-fourths of a mile southeastward of Mount Piana, and, as mentioned before, is the highest peak on the island. The contrast between these three peaks helps to locate the entrance to the port.

A conspicuous chapel standing on the summit of a 272-foot hill southeastward of Seno di Lepida, is visible after a vessel has passed the northwestern entrance point of the bay. On the southern shore of Seno di Lepida are the hangars and shops of an airport. The white naval building at Seno di Gonià is visible only from the easternmost part of the port, but a better mark at Seno di Gonià is the officer's mess, a white building which dominates the surrounding buildings.

8-130 Shoals.—**Secca Favati,** a rocky shoal with a depth of $4\frac{1}{2}$ fathoms, lies 200 yards eastward of the head of the mole at Seno di Gonià. Northward of the shoal the depths decrease in the cove.

Banco Quaroni, a small rocky $5\frac{1}{2}$ -fathom

patch, lies about 440 yards north-northwestward of Punta Malissa, the southern entrance point of Seno di Lepida.

Lights.—A light is shown from Angistro Point. The light structure was reported (1948) to be difficult to distinguish.

A light is shown from the head of the mole at Seno di Gonia.

A light is shown on Punta Pernice. A signal station is located nearby.

8-131 Beacons.—A white beacon is located on Zephyros Point (Punta Zeffros) about 1 mile northeastward of Angistro Head.

A small white stone beacon is located about 100 yards northeastward of Zephyros Point.

A beacon about 450 yards westward of Zephyros Point marks a group of sunken rocks.

A beacon is located at the northern entrance point to Seno di Temenia.

A small white stone beacon is located about one-half of a mile east-northeastward of Angistro Head.

A white post is located southward of Apeletes Point in a position about $\frac{1}{2}$ mile 128° from the light on the head of the mole at Seno di Gonia.

Mooring buoys.—Several mooring buoys are located in Port Laki. These mooring buoys should be used because the bottom is rocky in places and not good for anchoring.

Caution.—There are numerous sunken and stranded wrecks in Port Laki, the positions of which can best be seen on H.O. Chart 4154.

Foul ground is located about 300 yards south-southwestward and 350 yards east-northeastward of Zephyros Point.

A foul area lies about 175 yards north-westward of Banco Quaroni. The entrance of the bay is also foul.

An obstruction lies about 200 yards north-westward of the fuel pier at Ayios Yeoryios, a community located about $\frac{1}{2}$ mile south-westward of Punta Malissa.

Two dangerous wrecks lie about 600 yards northeastward and $1\frac{1}{2}$ mile southward, respectively, of Angistro Point.

Unless permission is granted, vessels are forbidden to approach within 220 yards of

the southern shore of Port Laki between positions about $\frac{1}{2}$ and 1 mile eastward of Angistro Point.

A conical buoy is located about 1,170 yards south-southeastward of Zephyros Point.

A light buoy is moored about 170 yards northeastward of the head of the mole at Seno di Gonia.

8-132 Anchorage.—Port Laki affords good anchorage in depths of 25 to 7 fathoms, mud, good holding ground. Vessels should avoid anchoring where the bottom is rocky. Although the port is open to the southwest, the neck of the entrance somewhat reduces the intensity of the sea from that direction. During violent southwesterly winds it would be better to seek anchorage on the eastern side of Lero Island, as the port does not afford safe protection against such winds. Vessels should lay out plenty of chain to resist violent westerly and southwesterly squalls that come down from Mount Konasmata and Mount Piana. These squalls may vary their direction from 6 to 7 points in a few minutes, raising a heavy sea.

8-133 Directions.—Coming from the northward, pass about 1 mile seaward of Skrophes Ledge, well visible, located a short distance from the coast 1 mile northwestward of the entrance to Port Laki. This ledge is also well visible from the southeast and south. When coming from the south, pass Cape Kalavati at a convenient distance.

The bay is difficult to identify when a vessel is coming from either the northwest or the southeast, because it is hidden by its entrance points. When a vessel is approaching the bay from the southwest, it is easily identified by the white buildings at its inner part. When a vessel is a short distance from the island, the entrance can be made out by the light structure on Angistro Point, but the signal station on Punta Pernice is not so easy to make out against the rocky background.

8-134 PORTOLAGO (TEMANIA) (LAKI) ($37^\circ 08' N.$, $26^\circ 51' E.$, H. O. Chart 4154), the village built on the northern side of Seno di Gonia, has a population of about 400.

Wharves.—The main quay at Seno di Gonià has a length of 793 feet and depths alongside of 17 to 10 feet. Another pier, 105 feet long, extends from the head of Seno di Gonià.

The T-head fuel pier at San Giorgio, a locality about three-fourths of a mile south-southwestward of Seno di Gonià, can accommodate vessels up to 350 feet long. The depths alongside are 23 to 28 feet. The main quay at San Giorgio provides a berthing space 444 feet long with depths of 21 to 23 feet alongside.

In Seno di Temenia there is a pier on the southern side of the cove and two small piers at its head.

Lighters and cranes are available for handling cargo.

Repairs.—Minor repairs can be accomplished.

Supplies.—Potable water is available at the main quay and at the water pier, both of which are located in Seno di Gonià. The water is not suitable for boilers. Fuel oil, coal, and provisions are available in limited quantities.

Communications.—A radio station is maintained. Regular communications by sea with Greece and other islands in the Dodecanese is available.

Hospital.—The port has a 50-bed hospital.

Meteorological table.—See appendix II.

8-135 Skrophes (Scrofe) Ledge, a mass of boulders from 5 to 20 feet high, extends about 500 yards from the coast 1 mile north-westward of the entrance to Port Laki. The water is deep westward of this ledge, the only danger in the vicinity of Port Laki.

Cape Konizma (Punta Conisma) projects about 1 mile northward of the extremity of Skrophes Ledge. It is the southern entrance point of Thremona Bay, and shoals lie as far as 500 yards northwestward of it.

8-136 Thremona (Gurna) Bay, over 1 mile wide in its entrance, indents the middle of the western side of Lero Island to a distance of $1\frac{1}{2}$ miles in an easterly direction. Churnas Nisia, two small islets with rocks between them, lie in the middle of the bay. About 400 yards southward of Plaka (Bassa) Point, the northern entrance point, lies a detached reef extending about 50 yards in a northwesterly and southeasterly direction.

The depths in Thremona Bay are irregular, and the shores are bordered by shoal depths and rocks. When the wind is not blowing from either the northwestern or the southwestern quadrant, coasters can obtain shelter at the head of the bay.

8-137 NORTHERN SIDE OF LERO ISLAND.—Parthani Bay (Baia di Parteni) (entrance, $37^{\circ}12' N.$, $26^{\circ}47'30'' E.$, H. O. Chart 4154), located at the northwestern end of Lero Island, recedes about 1 mile in a southeasterly direction and has depths throughout suitable for anchoring. It is entered between Punta Cora and Capo Timari, the respective eastern and western entrance points. As this bay is sufficiently sheltered from all winds and has good holding ground, it affords the best anchorage at Lero Island and is able to accommodate very large vessels. Even during violent storms the swell is only slightly felt.

Vessels are forbidden to approach, without permission, within 400 yards of the southern shore of Parthani Bay between its western entrance point and a position about $\frac{2}{3}$ mile southeastward, and within 100 yards of the shore in the vicinity of the southern entrance point of Porto di Rina.

PROHIBITED ANCHORAGE.—Anchorage is prohibited in an area from about $\frac{1}{4}$ to $\frac{1}{2}$ mile southeastward of the western entrance point of Parthani Bay.

Porto di Rina (Agia Matrona), a basin with depths of $3\frac{3}{4}$ to $2\frac{3}{4}$ fathoms in its central part, extends northeastward from the head of Parthani Bay. Being sheltered from all winds by the surrounding heights, this basin affords anchorage, good holding ground, to small vessels.

A concrete pier extends about 100 yards west-northwestward from the southern entrance point of Porto di Rina. The depths at the outer end of the pier are about 16 to 18 feet. The pier is equipped with two $2\frac{1}{2}$ -ton electric cranes. A conspicuous chimney is located about 400 yards southeastward of the pier. A wooden pier with a length of 350 feet and depths of 9 to 13 feet at its head projects from the head of Porto di Rina.

Several mooring buoys are available in Parthani Bay.

A patch of foul ground exists about 230 yards northeastward of the pier located on the southern entrance point.

8-138 Arkangelos (Arcangelo) Island, irregular in shape and extending 1.4 miles in a northeasterly and southwesterly direc-

tion, fronts the entrance to Parthani Bay. This island, 436 feet high in its northeastern part, has near the middle of its length a conspicuous white mill, in ruins.

Islets and shoals.—Pharios (Farado) Islets, a group of four, dark, gray-colored islets, lie close off the southwestern end of Arkhangelos Island and are separated from Lero Island by Pharios Channel. Except for the southwesternmost islet, they are connected to each other and to Arkhangelos Island by shoal water.

A rocky shoal extending 175 yards in a north and south direction and having a least depth of 2 fathoms lies 400 yards off the westernmost part of Arkhangelos Island.

Plakusa (Patella) Islet, 30 feet high, lies 600 yards eastward of the eastern extremity of Arkhangelos Island, and a rocky patch with a minimum depth of less than 1 fathom lies in the middle of the channel separating them. Depths of less than 5 fathoms extend nearly 200 yards northwestward and 100 yards southward from the islet.

A shoal with a least depth of 7 feet lies 850 yards southeastward of Plakusa Islet and 400 yards northward of the northern extremity of Lero Island.

Tripiti Islet, extending 700 yards in a north and south direction and having a height of 75 feet, lies 1,600 yards eastward of Plakusa Islet. Placusa Islet lies 100 yards southward of Tripiti, the passage between them being foul.

Strongili Islet, 292 feet high, lying 700 yards south-southeastward of Placusa Islet, lies in the approach to Baia de Blefuti.

8-139 Pharios (Farado) Channel and Arkhangelos (Arcangelo) Channel separate the Pharios Islets, Arkhangelos Island, and Plakusa Islet from the northern coast of Lero Island.

Directions.—The anchorage in Parthani Bay may be reached from the west by Pharios Channel and from the east by Arkhangelos Channel. The eastern approach

presents no difficulties, as the islets of Strongili, Placusa, Tripiti, and Plakusa are easy to identify. The western approach presents difficulties, because a vessel must be close to Lero Island before the Pharios Islets can be made out. The white mill on Arkhangelos Island is easily made out from a distance of 2 miles. The passage between Arkhangelos Island and Plakusa Islet is practicable for small vessels, which must take care to avoid the rocky shoal lying in the middle of it.

Coming from the east or southeast, pass close outside of Strongili Islet, where the water is deep, and then to avoid the 7-foot shoal lying 400 yards off the northern extremity of Lero Island, steer a course for a position close southward of Plakusa Islet.

The approach to Parthani Bay from the north presents no difficulties, as Arkhangelos Island, Plakusa Islet, and Tripiti Islet are easy to identify. Pass between Plakusa Islet and Tripiti Islet, and when abreast of Plakusa Islet, steer to pass through the middle of Arkhangelos Channel.

Care should be exercised by vessels entering the small basin at the eastern end of the bay, as a sunken obstruction extends off the northern entrance point in a southeasterly direction for a distance of about 200 yards.

8-140 Baia di Blefuti, a small inlet indenting the northern coast of Lero Island to a distance of one-half of a mile, is entered southward of Strongili Islet. Besides the shoals bordering the shore of this inlet, shallow water and a patch of rocks, 6 feet high, encumber the western half of the entrance. A shoal spit with depths of less than 5 fathoms extends northwestward from the southeastern side of the inlet, and the extremity of this spit is 400 yards southwestward of the eastern entrance point of the inlet. The inlet affords good anchorage during southeasterly winds, as well as those from the southwest and northwest quadrants.

8-141 LIPSO CHANNEL (CANALE DI LISSO), between Lero Island on the south and Lipso Island on the north, has a width of 3.8 miles. Four groups of islets, rocks, and shoals lie in this channel.

Saraki (Saraceno) ($37^{\circ}14' N.$, $26^{\circ}42' E.$, *H. O. Chart 4236*), the southwestern islet in Lipso Channel, is located 3.5 miles west-northwestward of the northwestern extremity of Arkhangel's Island. About 300 yards northeastward of the northern part of Saraki lies an isolated sunken rock, with deep water close outside of it and depths of 9 fathoms inside it. A light is shown on this islet.

Koreli (Coreli) Rock emerges 800 yards south-southwestward of Saraki. A rocky shoal with a least depth of $4\frac{1}{4}$ fathoms lies 600 yards eastward, and another shoal with a least depth of $5\frac{1}{4}$ fathoms lies 700 yards south-southwestward of the rock. To pass eastward of these dangers, steer with the western extremity of Khalavra Isles bearing 016° and open eastward of the islet of Phrango.

8-142 Phrango (Franco), the islet located 1.6 miles north-northeastward of Saraki, has a triangulation mark on its summit, 246 feet high. About 150 yards southward of this medium-sized islet lies a rock, above water, with a 4-fathom patch 300 yards eastward of it.

Miseo Reef, about 300 yards in length and partly above water, lies 600 yards north-westward of the northern end of Phrango, from which it is separated by deep water. The passage between Phrango and Miseo Reef to the southwest and Khalavra Isles to the northeast is deep and clear of dangers.

Khalavra (Calavropa) Isles, a group of six islets fringed by some rocks above water and by shallow water, lie 1 mile northeast of Phrango. The narrow passages through the group are available only for boats. The passage separating this group from the approach to Port Sokoro, located on the south-

western side of Lipso Island, is about one-half of a mile wide and has depths of 24 to 17 fathoms in its middle part.

Kalapodi (Calapodi), the two islets in the eastern part of Lipso Channel, lie $2\frac{1}{2}$ miles east-southeastward of Khalavra Isles. They are located on a steep-to and narrow shoal. Vessels can pass either northward or southward of these two islets.

A light is shown on the northern part of the larger islet.

8-143 LIPSO (LISSO) ISLAND (*southern end*, $37^{\circ}16' N.$, $26^{\circ}47' E.$, *H. O. Chart 4235*), from which the channel southward of it derives its name, extends $4\frac{1}{2}$ miles in a northwesterly and southeasterly direction, has a width from 700 yards to 2 miles, and attains a height of 909 feet in its northwestern part. The coasts, indented by numerous coves, are bordered by rocks and irregular depths, especially the southeastern part of the island.

The island draws its resources from fishing, grazing, and agriculture, barley, corn, grapes, and tobacco being raised.

8-144 Port Sokoro (Porto di Lisso), a snug little harbor indenting the southwestern coast of Lipso Island, is partly sheltered from the southwest by the Khalavra Isles, lying in its approach. Within the harbor are found depths of 16 to 5 fathoms, mud. On a projecting point of land southward of the village of Lisso, built on the eastern side of the harbor, stands the church of S. Nicola, a small rectangular building with a flat roof, which is a good mark for vessels proceeding to the head of the harbor. A mole with a length of 100 feet and a depth of 6 feet at its head projects from the northern side of the eastern part of the harbor.

A light is shown on the western entrance point of the harbor.

A light is exhibited from an iron pole on a small, red, cylindrical column standing on the head of the above-mentioned mole.

8-145 Lisso (Lipso), the only village on the island, is built on an elevation at the eastern end of the harbor. The village has a post office, and a steamer calls every 14 days.

8-146 Off-lying islets.—South Aspra Isles (Isolotti Colura), a group of three islets surrounded by shoal depths, lie within one-half of a mile of the southeastern extremity of Lipso Island. Rocky shoals with a least depth of $1\frac{1}{2}$ fathoms lie as far as one-half of a mile southward from the largest islet, or 600 yards southeastward from the southernmost and smallest islet.

The northern extremity of Phrango Islet bearing 264° and open southward of the rocks at the southern end of the Khalavra Isles leads southward of the South Aspra Isles, and the eastern extremity of the northernmost North Aspra Islet in range 350° with the eastern extremity of the southernmost North Aspra Islet leads eastward of them.

8-147 North Aspra Isles (Isole Bianche), a group of three islets and some rocks extending 1 mile in a north and south direction, are separated from the northeastern extremity of Lipso Island by a passage one-half of a mile in width. As rocky shoals extend into the passage both from North Aspra Isles and Lipso Island, the fairway is only 300 yards wide and has depths of 9 fathoms.

A rocky shoal with a least depth of $2\frac{3}{4}$ fathoms lies 1,400 yards northeastward of the northernmost North Aspra Islet. To pass southeastward of this shoal, keep the westernmost South Aspra Islet bearing 216° and open southeastward of the southernmost North Aspra Islet, and to pass northward of this same shoal, keep the southern extremity of Grilussa Islet slightly open southward of Kupaki (Psato) Islet.

A stranded wreck lies about 330 yards eastward of the northernmost North Aspra Islet.

Caution.—As numerous rocks and shoals lie in the vicinity of South Aspra Isles,

North Aspra Isles, and the coast of Lipso Island, it is advisable to pass outside of these off-lying islets.

8-148 Rephulia (Arefusa), an islet 203 feet high, is separated from the northwestern extremity of Lipso Island by Canale di Arefusa, a deep passage having a width of 800 yards. Isolotti di Manoli, a group of several islets and rocks, lie from 400 to 1,400 yards northeastward of Rephulia. A detached 3-fathom shoal lies 400 yards northeastward of the northern end of the northernmost Manoli Islet, which also has shoal depths extending 200 yards north-northeastward from this same end.

Port Muscat (Moscato), a small inlet indenting the northwestern end of Lipso Island, has no navigational value.

8-149 ARKI (ARCHI) ISLAND (*northern extremity, $37^\circ 25' N.$, $26^\circ 43' E.$, H. O. Chart 4235*), located 2 miles northward of Lipso Island, extends about $3\frac{1}{2}$ miles in a northwesterly and southeasterly direction and has an irregular coast line. The island is inhabited by shepherds. Porto Augusta, the longest inlet indenting the southwestern coast within the below-mentioned islets, affords good shelter to small vessels.

Grilussa is the largest and outermost of a group of four islets fronting the southwestern coast of Arki. Another group of islets lie off the southeastern end of Arki, and the channel (Canale di Archi) between this group and the detached shoal lying 400 yards northeastward of the northernmost Manoli Islet is 1 mile wide and clear of dangers.

Vessels navigating in the vicinity of Arki Island and Lipso Island should give a wide berth to all salient points.

8-150 PATMOS ISLAND AND OFF-LYING ISLETS.—Patmos (Patmo) Island

(southern extremity, $37^{\circ}16'$ N., $26^{\circ}34'$ E., *H. O. Chart 4235*), located $4\frac{1}{2}$ miles westward of Lipso and Arki Islands, has an irregular shape and occupies an area 7 miles long in a north and south direction. The island consists of three distinct masses connected by two narrow and low isthmuses. Mt. Sklaves (Grosso), attaining a height of 748 feet, rises in the northeastern part of the island and is conspicuous. St. Elias (Monte Profeta Elia), an 882-foot elevation in the southwestern part of the island, has on its summit a small white church, conspicuous from seaward. Two other summits, Monte Diavolo, 827 feet high, and Mt. Prasso, 797 feet high, rise in the southern part of the island. The various inlets indenting the broken, rocky, and steep coast do not afford anchorage sheltered from all winds.

Radar target.—It has been reported that Patmos Island is a good radar target with an echo range of 15 miles under normal conditions.

8-151 EASTERN SIDE OF PATMOS ISLAND (*plan on H. O. Chart 4122*).—Between Cape Yeranós (Germano), the eastern extremity of the island, and Cape Elia (Nido d'Aquila), on which a light is shown, $4\frac{1}{2}$ miles south-southwestward, the eastern coast forms a large bight that is indented by numerous smaller bays and fronted by several off-lying islets, shoals, and rocks. All anchorages on the eastern side of Patmos are difficult to approach on account of the off-lying islets and dangers, and are exposed to southeasterly winds in the winter, when vessels should seek anchorage at Port Merika, located on the western coast.

Cape Tripiti (Forata), close westward of Cape Yeranós, 243 feet high, projects 400 yards southward and has a height of 194 feet. Kudro (Ginepro), an islet 121 feet high, and Georgio, an islet 171 feet high, lie, respectively, 800 yards and 1,400 yards west-northwestward of Cape Tripiti. Both

are surrounded and connected to Patmos Island by shoal water encumbered with rocks, some above water.

Kambos (Campo) Bay, entered 900 yards west-northwestward of Georgio, recedes about the same distance in a northwesterly direction. Besides some white houses near the shore of this bay, the surrounding land is covered with vineyards.

8-152 Agria Livadia (Agro) Bay, which opens immediately southwestward of Kambos Bay, has the islet of Panagia (Santa Tecla), 75 feet high, lying in its entrance. Meloyi (Melo) Bay, smaller than Agria Livadia Bay, is entered 800 yards southward of the islet of Panagia.

Anchorage is available halfway between the islets of Georgio and Panagia in a depth of 16 fathoms, sand.

A light is shown from an iron tower, 6 feet high, located on the extremity of the southern entrance point of Meloyi Bay. Another light is exhibited on the eastern point of Cape Yeranós.

8-153 Port Scala, entered close southward of Meloyi Bay, recedes 1,600 yards in a northwesterly direction, and has an average width of 400 yards and depths of 18 to 3 fathoms, sand and weed. On the southwestern shore of the bay is the village of Scala, and on the summit of a hill over one-half of a mile southward of the village is the town of Patmo, which stands out as a great white mass, visible at a great distance in the daytime, as well as on moonlight nights. In the middle and highest part of the town rises the Monastery of St. John, which has the aspect of a fortress flanked by towers and constitutes a good point of recognition. About halfway between the village and the town is a grotto, near which stand another monastery and a small church.

A rock with a depth of 1 fathom or less lies 130 yards 015° from the below-mentioned light.

A light is exhibited from a green iron pole, 15 feet high, standing on the root of a small pier at the village of Scala.

A white buoy is moored on the edge of the shallow bank about 100 yards northward of the pier.

8-154 Anchorage.—Large vessels can anchor 400 yards off Cape Kumana (Cumano), the northern entrance point of Port Scala, in a depth of 22 fathoms, sand.

A small vessel can anchor a short distance within the entrance in a depth of 13 fathoms, sand and weeds, with the pier bearing 250°, distant 300 yards. In this position a vessel has only 150 yards of swinging room, and numerous sailing vessels lie at anchor eastward of the pier.

Directions.—Directions for approaching Port Scala follow the description of the off-lying islets and dangers.

8-155 Port Griko (Grico) and Port Pietra.—A bay over 1 mile wide in the entrance lies southward of Port Scala, from which it is separated by a peninsula terminating in Cape Trago (Cismeni). In the middle of this bay lies the islet of Trago (Caprone), 351 feet high. Port Griko, northward of the islet, has a width of 400 yards and depths of 19 to 4½ fathoms. Small vessels may obtain good anchorage in the middle of this port in depths of 13 fathoms, sand and mud.

Port Pietra, which is that part of the bay southward of Trago Islet, is connected to Port Griko by a channel on the western side of the islet, but this channel is reduced to a least width of 90 yards by shoals on either side.

Trago Reef (Scogli dei Granchi), located 600 yards eastward of Trago Islet, from which it is separated by deep water, extends 400 yards in a north and south direction. The sea breaks continually on this steep-to reef, which is partially awash. A rock, from which a light is shown lies close southward of Trago Reef.

8-156 Off-lying islets and dangers—Khelia (Cigliomodi) Islet (37°18' N., 26°36' E.), 374 feet high, lies 1½ miles eastward of Cape Trago. The island is bordered by shoal water and rocks, which extend as far as 200 yards northward and 300 yards southward from the islet.

A shoal area with a least depth of 6 fathoms lies about 1,450 yards west-southwestward of the southern extremity of Khelia Islet.

Khelia Rock (Secca Chelia), with a least depth of 3 feet, lies 1,200 yards southward of the southern extremity of Khelia Islet. The northern part of the hill dominating Cape Yenupa, the southwestern extremity of Patmos Island, in range 268° with the southern side of Trago Islet leads southward of Khelia Rock. Cape Yeranós, the eastern extremity of Patmos Island, bearing 003° and well open eastward of Khelia Islet, leads eastward of the rock.

Sklavaki Islets (Scogli Sckiavi), a group of islets and rocks extending 1,200 yards in a northeasterly and southwesterly direction, lie 2 miles eastward of Port Scala and 1,100 to 1,700 yards northward of Khelia Islet. These islets are well visible, and a rocky shoal extends a short distance southeastward from the northernmost one.

8-157 Directions for Port Scala.—When coming from the north, pass through the middle of the passage between Sklavaki Islets and the eastern extremity of Patmos Island, and then steer for Port Scala.

The approach from the south is more difficult on account of the off-lying islets and dangers. When approaching from the south or west, round Cape Elia at a short distance and then steer for the summit of Khelia

Islet. When Cape Trago is abeam, change course for Port Scala, passing 500 yards northeastward of Cape Trago.

Vessels making regular calls at Port Scala usually approach from the north. Unless a vessel is familiar with the passages through the off-lying islets and dangers, a vessel should not seek anchorage at night off the eastern side of Patmos Island.

8-158 THE WEST COAST OF PATMOS ISLAND (*H. O. Chart 4235*), is steep and irregular, being indented by several bays. As this coast is fronted by some rocks, vessels should give it a safe berth.

Port Stavros (Croce), which indents the western coast of the island near its southern end, is separated from Ports Griko and Pietra by a narrow isthmus. The shores of this bay are bordered by shoal water and rocks.

Port Merika (Merica), the small bay entered $2\frac{3}{4}$ miles northward of Port Stavros, affords shelter from southeasterly winds.

8-159 THE NORTHERN COAST OF PATMOS ISLAND is also irregular, being indented from west to east by Baia di S. Nicola and Baia di Lampi. The projecting points on this side of the island should be given a safe berth. Balamo Islets, a group of three small ones, lie in the eastern approach to Baia di Lampi.

Anedro, an islet, 334 feet high, lies $2\frac{1}{2}$ miles northwestward of Cape Zoluphi (Zulufi), the northwestern extremity of Patmos Island. The southern side of the islet is steep and rocky. A light is shown from Anedro, close south-southwestward of which stands a beacon.

Petro Karavi (Petrocaravi), which emerge 2 miles westward of Anedro, are a cluster of rocks, 220 feet high, extending 400 yards in a north and south direction and having deep water around them. These rocks are covered by the red sector of the light on Anedro.

8-160 PHARMAKO (FARMACO) (FARMAKON-ISI) ($37^{\circ}17' N., 27^{\circ}06' E., H. O. Chart 4191$), an island lying about $13\frac{1}{2}$ miles eastward of Lipso Island and $5\frac{1}{4}$ miles off the mainland of Turkey, from which it is separated by a passage with depths of 39 fathoms, has a length of 2 miles in a north and south direction and a maximum width of 1 mile. Characterized by gentle slopes, this island attains a height of 348 feet in its southern part. The eastern side is indented by several small coves, and on the southern side are visible some fortifications in ruins. A light is shown on the 348-foot summit.

A $4\frac{1}{4}$ -fathom shoal lies 800 yards 354° from the southeastern point of Pharmako. A dangerous foul area is charted about 2 miles southward of the island. Except for these areas and places near the shore, the island is surrounded by deep water.

8-161 GAIDARO ISLAND (AGATHONISI) (*western extremity, $37^{\circ}29' N., 27^{\circ}01' E., H. O. Chart 4191$*), the northernmost of the Dodecanese Islands, is located $11\frac{1}{2}$ miles northeastward of Lipso Island and 8 miles off the mainland of Turkey, from which it is separated by a passage with general depths of 35 fathoms. The island extends $4\frac{1}{2}$ miles in an east and west direction and attains a height of 720 feet in Monte Ossodentro, rising in the western part of the island. The coasts of this island are indented by some bays with deep water.

The main occupation of the 200 inhabitants on the island is raising cattle.

8-162 Islets and dangers.—On the northern side of Gaidaro Island are several islets and dangers, Psatho (Piatto) being the westernmost islet. Midway between Strongilo and Nero, the next islets eastward, respectively, of Psatho emerges a large rock with a sunken reef extending nearly 400 yards westward from it. Nero, a long islet in an east and west direction, is connected at its western end by a reef to Gaidaro Island. A rocky shoal with a depth of less than 6 feet lies about 575 yards northeast-

ward of Claro, the easternmost islet. Kunelli (Conigli), another islet, lies 1,800 yards off the southern side of Gaidaro Island, from which it is separated by deep water. Other dangers, besides those mentioned, may exist between Gaidaro and the islets lying off it.

A charted bank with a least depth of 6 fathoms at its eastern end is located from 1,200 to 1,800 yards westward of the western extremity of the islet of Psatho.

8-163 Porto S. Giorgio, the head of the bay indenting the western part of the southern side of Gaidaro Island to a distance of 1 mile, has on its eastern side the village of Coriò. The bay is deep and open to winds from the southeastern and southwestern quadrants. A light is shown on Cape Acerbo, the western entrance point of Porto S. Giorgio.

8-164 FURNI (PHURNI) (FOURNOI) ISLANDS (*northern extremity, 37°39' N., 26°32' E., H. O. Chart 4233*), which belong to Greece, are a group of twelve islands and rocks having a peculiar formation, and lie about $7\frac{1}{2}$ miles northward of Patmos Island and nearly midway between the island of Nikaria to the west and the island of Samos to the east. The coasts of these islands are indented by numerous little bays, frequented only by small vessels having local knowledge.

8-165 Furni (Fournoi) Island, which takes its name from the group, is the northernmost and largest island. This island, extending $7\frac{1}{2}$ miles in a north and south direction, is very irregular in shape, consists of two large parts connected by a narrow isthmus, and attains a height of 1,691 feet in its northern part.

A light is shown from Cape Malaki (Alonaki), the northern extremity of Furni Island. Another light is shown on the western side of the island in a position about $\frac{2}{3}$ mile southeastward of the northern end of Diapori Island.

Vagli (Vali) Cove, located on the western side of Furni Island near the middle and northward of the isthmus previously men-

tioned, affords secure anchorage to small vessels, but the depths in the entrance are considerable.

Diapori (Dhiapori) Island lies off the western side of the southern part of Furni Island, there being no navigable passage between them.

8-166 Marmoron (Marmarokopia) (Marmaro) Bay, the bay indenting Furni Island eastward of the southern part of Diapori Island, affords the most secure anchorage in the Furni Islands. Moderate depths, mud, are found within 300 yards of the eastern shore of the bay. An 18-foot patch lies off the northern entrance point of the bay.

Fournoi, a village on the western side of Furni Island nearly 1 mile southeastward of Diapori Island, is a principal Customs Station. A small pier at Fournoi has 8 feet off its head. The bay fronting the village is affected by winds between west and north, but is otherwise a good anchorage with bottom of sand and weed.

Themina (Dimina) (Fimaina), the westernmost island of the Furni Islands, attains a height of 1,615 feet. Nisi Theminas (Diminaka) (Fimaino), a small islet, and several rocks lie within one-half of a mile of the northwestern side of Themina. A light is shown on Cape Trakhili, the western extremity of Themina.

8-167 Furni Boghaz, the channel between Themina on the west and Diapori Island on the east, is nearly 150 yards wide and has a depth of 10 fathoms. In case of necessity Furni Boghaz can be used by steam vessels, or by sailing vessels with a favorable wind.

Alazo Nisi (Alatonisi), an islet 466 feet high, lies $2\frac{1}{2}$ miles south-southeastward of Cape Trakhili. A shoal with a depth of $3\frac{1}{2}$ fathoms extends 150 yards westward from the western point of the islet, and 800 yards southwestward of this same point lies a rock with a depth of $2\frac{1}{2}$ fathoms over it.

8-168 Islets and shoals.—Four islets, Strongilo, Plati, Makra Nisi (Makronisi), and Agridhio, lie as far as $1\frac{1}{2}$ miles southward of Cape Agridhio, the southern extremity of Furni Island.

Furni (Phurni) (Fournoi) Rock, on which the depth is $4\frac{3}{4}$ fathoms, lies 1.9 miles 174° from the southern extremity of Makra Nisi, the largest and southernmost of the above-mentioned islets. About 350 yards south-eastward of this rock lies a $5\frac{3}{4}$ -fathom shoal. As long as Furni Boghaz, the channel separating the island of Themina from that of Diapori is seen open, a vessel is westward of these two dangers.

Kedros (Mikros Anthropofagos) and Anthro (Megalos Anthropofagos) are two islets lying, respectively, 1.5 miles eastward and 1.5 miles southeastward of the southern extremity of Furni Island. About 1,500 yards south-southeastward of Anthro lies a $5\frac{1}{4}$ -fathom shoal.

Agios Menas (Ayios Minas) Island lies off the eastern side of the northern part of Furni Island. During the summer temporary anchorage may be obtained in the small bay indenting Furni Island abreast the southwestern extremity of Agios Menas Island.

8-169 Furni Pass (Fournoi Channel), separating the Furni Islands from the island of Samos (sec. 9-1), lying to the northeastward, is $3\frac{1}{2}$ miles wide and clear of dangers. During northerly winds sailing vessels beating to windward use Samos Strait.

Current.—In Furni Pass the current sets northward and causes a confused and troublesome sea.

8-170 NIKARIA (IKARIA) ISLAND (*northeastern extremity, $37^\circ 42' N.$, $26^\circ 23' E.$, H. O. Chart 4233*), another Greek island located 5 miles westward of the Furni Islands, from which it is separated by Nikaria (Ikaria) Passage, deep and clear of dangers, extends $21\frac{1}{2}$ miles in a northeasterly and southwesterly direction and is from 3 to 5 miles in width. Extending the entire length of the island is a lofty chain of mountains, varying in height from 2,000 to 3,420 feet. Although the island has no commercial harbors, there are several anchorage places used by coasters.

EVDHILOS ($37^\circ 38' N.$, $26^\circ 10' E.$, plan on H. O. Chart 4122), a small port on the northern shore of Nikaria Island, is situated about

$4\frac{3}{4}$ miles eastward of Cape Strephoni. Only motor launches can tie up alongside the quay and pier. Larger vessels may anchor in the middle of the harbor area. Provisions are plentiful; water is available by hose, but there are no barges or lighters. Telephone service is available. A wreck, with a depth of $1\frac{1}{4}$ fathom, lies about 210 yards southwestward of Akr Evdhilos, the western entrance point to the port.

The inhabitants, numbering about 11,000, live in numerous villages scattered throughout the island. Ayios Kirikos, a village of 950 inhabitants, is the capital and is served by Angeriko Bay. The island has a good climate. Fruits of all kinds grow; the high parts of the island are covered by a forest.

Cape Papas, the southwestern extremity of Nikaria Island, slopes steeply to the sea.

It has been reported that Cape Papas is a good radar target with an echo range of 7 miles under normal conditions.

A light is exhibited from a cylindrical tower, 36 feet high, adjacent to a house standing on Cape Papas; the light is reported (1965) obscured east of a line bearing 159°

8-171 Cape Strephoni (Armenistis) is the northwestern extremity of Nikaria Island. Armenisti Bay, located immediately eastward of the cape, has the small islet of Yediskari (Nisis Yialistari), 6 feet high, in its eastern part. In 1909 a naval vessel anchored in a depth of 17 fathoms with Yediskari Islet bearing 159° , distant 1,100 yards. A conspicuous church has been reported (1965) to stand on Yediskari Islet. From this berth the depths decreased gradually toward the shore, the 10-fathom curve being 800 yards from it. A small concrete wharf, with a depth of 10 feet at its head, is located about 300 yards southward of the western entrance of the bay.

During offshore winds and under favorable conditions small vessels can anchor in Kerame Bay, $4\frac{3}{4}$ miles eastward of Cape Strephoni, or under Gonati Point (Cape Ayios Fokas), located 3 miles westward of Cape Phanar. At the first sign of northerly winds vessels must leave these anchorages.

A light is exhibited from an iron tower, with concrete base, the whole 20 feet high,

on Cape Strephoni. A light is shown from a small islet, near the western entrance to the small port of Evdhilos, about $4\frac{3}{4}$ miles eastward of the cape.

Cape Phanar (Dhrapanon), the northeastern extremity of Nikaria Island, is flat, but three-fourths of a mile southwestward of it rises Beacon Hill, a slight elevation. Between the cape and the hill stands a ruined tower, 40 feet high.

Cape Phanar Light is shown from an iron skeleton obelisk with hut near the extremity of the cape.

8-172 Anchorages and dangers off southeastern side of Nikaria Island.—Temporary anchorage during offshore winds may be obtained seaward of Agios Georgios (Ayios Yeoryios), located one-half of a mile southward of Cape Phanar. In 1932 a vessel reported striking a $3\frac{1}{2}$ -fathom shoal lying three-fourths of a mile south-southeastward of Cape Phanar and 700 yards offshore; vessels seeking anchorage off Agios Georgios must be careful to avoid this shoal.

The coast southward of Beacon Hill is a curved sandy beach, affording shelter from northerly and northwesterly winds. Vessels of deep draft must remain at a safe distance from the beach, as depths of 5 fathoms and less extend as far as 400 yards offshore. In 1937 a vessel reported striking a rock with a depth of less than 6 feet located two-thirds of a mile southwestward of Kolomera Point (Cape Kalomeria), the point where the sandy beach commences to trend westward.

Angeriko (Ayios Kirikos) Bay, located 5.7 miles southwestward of Cape Phanar, affords temporary anchorage during offshore winds. **St. Nikolaos (Ayios Nikolaos) Bay**, located $3\frac{1}{2}$ miles eastward of Cape Papas, also affords temporary anchorage during offshore winds.

A light is shown from an iron tower with mast 13 feet high near the southern part of Angeriko Bay. A light is shown about $\frac{1}{3}$ mile north-northeastward of the above light.

Manganitis Church, located on the southeastern side of Nikaria Island about $7\frac{1}{2}$

miles east-northeastward of Cape Papas, is a conspicuous landmark.

8-173 FENER BURUN TO MANDALYA KÖRFEZİ—Coast (*H. O. Chart 4237*).—Between Fener Burun, on the northern side of İstanköy Kanalı, and Palamat Bükü, 8 miles northward, the coast is bordered by a shoal bank and sunken rocks in places. This shoal bank with depths of less than 5 fathoms extends 800 yards offshore abreast of Karabakla Island. Pitta Islet lies 4 miles northward of Fener Burun and 500 yards off the coast, from which it is separated by depths of 5 to 7 fathoms. Karabakla Burnu, 1,700 yards northwestward of Pitta Islet, has two large dry rocks off it, and depths of less than 10 fathoms extend as far as 500 yards off the coast southeastward of the point.

8-174 Off-lying islands and rocks.—A group of about a dozen islets and rocks lies off the coast between Fener Burun and Palamat Bükü.

Karabakla (Karabaghla) Island, located 3 miles northwestward of Fener Burun and $1\frac{1}{4}$ miles off the coast, from which it is separated by Karabakla Channel, is the largest of the off-lying islands. It is nearly divided into two parts by a low sandy isthmus, the northern part being 500 feet high and the southern part 367 feet high. Small islets and rocks skirt the southern end and western side of the island.

Topan Adası (Atsaki), a small conical islet, lies $1\frac{1}{2}$ miles westward of Karabakla Island, the depths between them being from 25 to 40 fathoms.

Lodo, an islet located 600 yards southwestward of Lepto, another small islet close off the southern end of Karabakla Island, has a reef extending 300 yards west-southwestward from its southwestern point. This reef should be given a wide berth.

Chuka, a small steep-to islet, lies 1,300 yards southward of the southern end of Karabakla Island. It is one of the marks for clearing Magpie Rock, located in İstanköy Kanalı.

Tüylüce Ada (Malathro Islet), located eastward of Chuka, lies more than 1 mile

off the mainland. It has rocks above water close off its northern and southern ends. About 500 yards northwestward of Tüylüce Ada are the two Kruso Islets, surrounded by shoal depths.

The wide and deep channel between the islets of Topan Adası, Lodo, and Chuka on the northeast and Pserimos Island on the southwest is called Chuka Channel.

Sponge Rock, with a least depth of 6 fathoms over it, lies about 1 mile northward of Karabakla Island and three-fourths of a mile southwestward of Karabakla Burnu. The light on Fener Burun in range 144° with the northeastern extremity of Karabakla Island leads southwestward of Sponge Rock; the Kruso Islets in range 180° with the eastern extremity of Karabakla Island lead eastward of it.

Cavuş Adası (Kato Islet), located 2 miles north-northwestward of Karabakla Island and $1\frac{1}{2}$ miles off the coast of the mainland, is 700 yards in extent and 230 feet high. The irregular rocky coast is fringed by shoal depths. A circular tower stands near the northeastern extremity of the islet.

Kardak (Heipethes) Rocks, a group of two rocks above water lying $2\frac{1}{4}$ miles westward of Cavuş Adası, are separated from each other by a passage with a width of 300 yards and a depth of 19 fathoms. Shallow water extends 200 yards southeastward from both rocks.

A description of some more off-lying islets follows Gümüşlü Lımanı.

8-175 Gümüşlü Lımanı (Gumishlu), a snug, narrow inlet sheltered from the west by a bluff 290 feet high, is located $1\frac{1}{4}$ miles eastward of Cavuş Adası. Extending 600 yards in a northerly direction, this inlet with a sandy shore has depths of 10 to 4 fathoms, sand and mud. The entrance with a fairway only 40 yards wide and 12 fathoms deep is westward of an islet connected to the

mainland by the remains of an ancient mole. During southerly gales anchorage in the inlet becomes uncomfortable due to the wind that sweeps down the deep valley to the southeastward of the inlet.

A sunken rock lies in the inlet about 300 yards north-northeastward of the above-mentioned islet forming the eastern entrance point. The fairway westward of this rock is 150 feet wide and 10 fathoms deep between the 5-fathom curve on either side. On the heights, 500 feet high, northeastward of the port are the ruined walls of the ancient town of Myndus.

A small settlement is located at Gümüşlü Lımanı. Good water is obtainable in small quantities from the wells. Fruit in season can be purchased.

Paleo Point is the name given to the northwestern extremity of the bluff sheltering Gümüşlü Lımanı. Shoals, steep-to on the western side and having a least depth of 3 fathoms, extend 650 yards north-northwestward from Paleo Point.

8-176 Büyük Kiremit Adası (Pondikusa Islet) ($37^{\circ}05' N.$, $27^{\circ}13' E.$, *H. O. Chart 4191*), about 1,400 yards in length in a northeasterly and southwesterly direction, lies $1\frac{1}{2}$ miles northwestward of Paleo Point and $1\frac{1}{4}$ miles off the mainland. It is fringed by shoal depths extending offshore for a short distance.

A light is shown from the northern end of the island near its extremity.

Küçük Kiremid Adası (Keramidi), a smaller islet lying 1,800 yards eastward of Büyük Kiremit Adası, has some rocks at its western end. It is separated from the mainland by a passage with a width of 200 yards and a depth of 5 fathoms.

Myndus Rock, over which the depth is $4\frac{1}{2}$ fathoms, lies about 1,500 yards northeastward of the northeastern end of Büyük Kiremit Adası, and in the fairway of vessels passing between Büyük Kiremit Adası and Küçük Kiremid Adası. To pass westward

of the rock, keep Tüylüce Ada well open to the west of Paleo Point.

8-177 Sandama Peninsula, located $2\frac{1}{4}$ miles northeastward of Büyük Kiremit Adası, forms the western extremity of the southern shore of Mandalya Körfezi. Attaining a height of 600 feet, this peninsula extends $1\frac{1}{2}$ miles westward from the mainland of Turkey, to which it is connected by a low and very narrow isthmus. The coast of this peninsula is very irregular and rocky, and off the northernmost point are four or five rocks.

Palamat Bükü (Sandama Bay), the northern shore of which is formed by Sandama Peninsula, recedes 2 miles in an east-northeastly direction and has rocky shores on either side. This bay is exposed to winds from north, through west, to southwest, and considerable swell sets in during a southerly gale. A small islet surrounded by rocks and shoal water lies off the southern shore near the head, but the central part of the bay has deep water. The lights of the village of Sandama, located at the head, are useful when a vessel is entering at night.

8-178 Paşa Liman (Pasha Bay), a narrow inlet exposed to northerly winds, indents the northern coast of the western part of Sandama Peninsula. Steep cliffs rising to a height of 600 feet form the sides. A large rock lies close off the western entrance point, and rocky ground fringes the eastern entrance point. About one-half of a mile within its deep entrance the inlet has moderate depths, stiff sand and weeds.

Wreck Rock, 21 feet high, is the outermost of the rocks lying off the northernmost point of Sandama Peninsula, previously mentioned. Except for a $2\frac{1}{2}$ -fathom patch on its eastern side the rock is steep-to.

About 800 yards east-southeastward of this rock and the same distance northward of the northernmost point of Sandama Pe-

ninsula lies a shoal with a least depth of 3 fathoms.

8-179 MANDALYA KÖRFEZİ (MENDELIA GULF) (*H. O. Chart 4191*), located eastward of Lero Island and Lipso Island and fronted by the island of Pharmako, is one of several large gulfs indenting the western coast of Turkey. The gulf is 14 miles wide in its entrance between Sandama Peninsula and Tek Ağaç Burnu, 14 miles north-northwestward, and recedes about the same distance in an easterly direction. The southern shore, the head, and the northern shore are all indented by numerous bays, and islands lie near the shore in places.

8-180 SOUTHERN SIDE OF MANDALYA KÖRFEZİ.—Between Sandama Peninsula and the head of Güvercinlik Bay, 15 miles eastward, are numerous deep bays with rocky shores, projecting points, and off-lying islands. Backing this rugged shore is high land, attaining its greatest elevation in Razar (Oglu) Dağ, 2,280 feet high.

Frenk Asmak Liman, the westernmost bay indenting the southern side of Mandalya Körfezi, is a large bay open to the north and northwest. A swell occurs whenever the wind is south of west. The bay has steep cliffs on its western and eastern sides.

8-181 Pharlah Bay, the next bay eastward of Frenk Asmak Liman, recedes over 1 mile in a southerly direction. The bay can afford complete shelter to four small-sized vessels. Küçük Liman, the small cove in the northeastern part of Pharlah Bay, can accommodate only small craft.

Kara Ada (St. Apostola) (Konel Ad), an island extending 1 mile northwestward and southeastward and rising to a height of 386 feet, lies one-half mile northeastward of the entrance to Pharlah Bay and 800 yards off the southern shore of the gulf. An islet

fringed by shoal depths lies immediately off the northwestern end of the island, the southern side of which is also fringed by shoal depths. On the island are some ruins.

Kara Ada Light is shown from atop a small island located close off the northern end of Kara Ada Island.

The passage separating Kara Ada from the steep-to southern shore of the gulf has depths of 25 fathoms in midchannel. In the eastern part of this passage emerges High Rock, which is steep-to except for a 6-fathom shoal extending a short distance southeastward.

8-182 **Turk Bükü (Ghiul Bay)**, entered $1\frac{1}{2}$ miles southeastward of the island of Kara Ada, recedes 1 mile southward. In the valley at the head of the bay are some ruins, and a stream discharges into the bay. A short distance inland is also a lagoon, which communicates with the sea. An island, together with an islet close southwestward of it, forms with the steep peninsula bounding the northwestern side of the bay a narrow passage with depths of 14 to 16 fathoms. The bight forming the southwestern part of the bay has shallow water bordering its southern entrance point, and affords anchorage in depths of 15 to 10 fathoms, mud, sheltered from all winds but those between northeast and east. The depths throughout the bay are suitable for anchoring, the bottom being sand and mud.

Vessels have reported gusts of force 5-6, apparently funnelling down the valley at the head, when wind outside in the gulf was force 3 or 4. These gusts caused anchor to drag.

Denir Liman is the name of the small inlet located $1\frac{3}{4}$ miles east-southeastward of Turk Bükü; Karasi Bay, about midway between them, is available only to small craft, the entrance being about 200 yards wide and much narrower than indicated on the chart. About 800 yards eastward of the northern entrance point of Denir Liman lies a steep-to

shoal, having a depth of $2\frac{1}{2}$ fathoms and a length of 300 yards.

8-183 **Turfanda Buku (Durvanda Bay) (Torba Limani)**, entered $1\frac{3}{4}$ miles south-southeastward of Denir Liman, affords anchorage in depths of 18 to 5 fathoms. Two small islets lie close off the northern part of the eastern shore, to which they are connected by shoal water. The land southeastward of the bay attains a height of 1,776 feet.

Tarandakia Islets (Far Adalari), two in number, lie 1 mile northward of the entrance to Turfanda Bükü. The southwestern islet is the higher of the two, being 140 feet high, and is separated from the other by a passage with a width of 300 yards and a depth of 5 to 7 fathoms.

8-184 **HEAD OF MANDALYA KÖRFEZİ.—Salih Adası (Tarandos Island)** (*southwestern extremity, $37^{\circ}08' N.$, $27^{\circ}29' E.$, H. O. Chart 4191*, having a height of 498 feet and an irregular shape, is located in the southwestern part of the head of Mandalya Körfezi. The southwestern extremity of the island, located three-fourths of a mile northeastward of the northeastern Tarandakia Islet, from which it is separated by a deep channel, has a shoal with a least depth of 3 fathoms extending 500 yards southward from it. Between the eastern side of the island, where there is a village and some ruins, and the mainland is a narrow channel having a width of 300 yards and a depth of 10 fathoms. A shallow bank extends a short distance from the island in the southern entrance, and a similar bank extends a short distance from the mainland in the northern entrance.

8-185 **Güvercinlik Bay**, entered 1 mile east-southeastward of the southeastern point of Salih Adası, recedes $1\frac{1}{2}$ miles in an easterly direction, has an average width of one-half of a mile and depths of 20 to 4 fathoms, and is well sheltered, being fronted by Salih Adası and Tarandakia Islets. The southern side

of the entrance is bordered by a narrow bank, and close to the coast a short distance west-southwestward of the southern entrance point are two small islets or rocks, called Karandakia. In addition to some ruins on the southern entrance point, other ruins, the supposed site of the ancient port of Karyanda, and the village of Güvercinlik are located at the head of the bay.

Ince Burnu, located $1\frac{3}{4}$ miles northward of the eastern part of Salih Adası, is the extremity of a tongue of land extending 1 mile northwestward from the mainland. **Kırmızı Ada** (Ufak Ad), an islet about 300 yards in length, lies close off Ince Burnu. Although the passage between them has a depth of 3 fathoms in midchannel, it is contracted on either side by shoals and is suitable only for small vessels with local knowledge.

8-186 Asen Körfezi (Iassus Bay), entered northward of Kırmızı Ada, recedes 5 miles in a northeasterly direction and has an average width of $2\frac{1}{2}$ miles. The shores, indented by several coves, are backed by hills, which southeastward of the bay attain a height of 1,065 feet. The whole bay affords well sheltered anchorage, good holding ground.

Bargylia Creek is entered $2\frac{3}{4}$ miles east-northeastward of Kırmızı Ada, and the irregular intervening coast is bordered by three shoal patches and has a small off-lying islet. This narrow cove for the first 1,400 yards has depths of 9 to 3 fathoms, but the remainder of the cove extending first 1 mile southeastward and then 1 mile southwestward from the causeway of Bargylia is shallow and foul. On the site of Bargylia may be traced vestiges of ancient walls, remains of an aqueduct, a theater, temples, tombs, a fortress of the Middle Ages, and other ruins. The Alikı River discharges into the head of the arm that trends southwestward.

Bargylia Creek is not recommended as an anchorage, as other places more suitable are found in the immediate vicinity.

Küllük (Güllük), Liman, a small cove entered $1\frac{1}{2}$ miles northeastward of Bargylia Creek, is well sheltered except from southwesterly winds. On the shoal fringing the southwestern entrance point stands a small islet. Vessels, which are anchored by the harbormaster, use both anchors and run stern lines to the shore. The bottom is mud.

A light is shown from a tower about $1\frac{1}{2}$ miles north-northeastward of Bargylia Creek.

Safe anchorage was found on the 10-fathom curve with the northeast point of Chironisi Island bearing 295° and the southeast tip of Nice Gul Burnu bearing 253° .

Küllük (Güllük) (Chulukioi), a town of about 2,000 inhabitants, stands on the northeastern entrance point of Küllük Liman. There are five piers, available only for caiques with a draft of less than 10 feet. Lighters are used for handling cargo at the anchorage. There are no supplies, provisions, or water available.

A light is shown from Cape Camlik, the southeastern entrance point of Küllük Liman.

8-187 Sheiro Bay, on the northwestern side of Asen Körfezi, is immediately westward of a tongue of land projecting 1,500 yards southeastward from the shore. This small bay has depths of 10 to 3 fathoms, and a sunken rock lies on the eastern side a short distance within the entrance. **Abanoz Adası**, a narrow island about 1 mile long in a northwest and southeast direction, lies parallel to the tongue of land, from which it is separated by a narrow channel with depths of 10 to 7 fathoms. Shallow water extends nearly 200 yards northeastward from each end of the northeastern side of the island, and a spit with a submerged rock on it extends 200 yards northwestward from the northwestern end of the island. **Chironisi** and **Beyaz Ada**, two small islets surrounded by shoal depths, lie northward of Abanoz Adası, but everywhere else the

northern part of Asen Körfezi has depths of 13 to 6 fathoms.

8-188 Port Isene (Asin) ($37^{\circ}17' N.$ $27^{\circ}36' E.$, H.O. Chart 4191), located at the head of Asen Körfezi, is on the western side of Iassus Promontory, which formerly was an island but now is united to the low shore. On the summit of the promontory stands a Venetian castle, and in its vicinity are the remains of a theater, temple, aqueduct, and tombs. The narrow entrance to this small port is between the remains of an old mole on the west and an old tower on the east. From 5 fathoms in the entrance the depths decrease to 4 and 3 fathoms in an area extending 400 yards northward from the entrance, and become considerably less towards the head.

Isene Bay, located immediately eastward of Iassus Promontory, is one-half of a mile wide in its entrance and recedes three-fourths of a mile in a northerly direction. The outer part has depths of 6 to 4 fathoms, mud, decreasing gradually toward the sandy shore at the head, where a stream discharges. The bay is sheltered from all but southwesterly winds.

Kasalkioi (Kasalköy) Bay is located eastward of Isene Bay, from which it is separated by a promontory. On the eastern side of this bay is the village of Kasalkioi (Kasalköy), where there is a customhouse. From $\frac{1}{2}$ to 1 mile southward of this bay the coast is broken and bordered by shoals extending as far as one-half of a mile offshore. Along this coast are the mouth of the Sarı Cay and the village of Talyani with a landing stage.

8-189 Alan Gul Körfezi (Alaguni Bay) (Cam Limanı) (entrance, $37^{\circ}15' N.$, $27^{\circ}29' E.$, H.O. Chart 4191), the entrance of which is immediately northwestward of that to Asen Körfezi, recedes $2\frac{1}{2}$ miles in a northeasterly direction between two ridges. The southeastern ridge, 643 feet high, terminates

in Nice Gul Burnu (Cape Nyekul), while the northwestern ridge, 904 feet high, terminates in Alangul Burnu. The salient points of the irregular shore are bordered by shoal depths. In the middle toward the head lie two shoals, the outer one with a depth of 7 fathoms and the inner one with a depth of 5 fathoms.

A light is shown from a white concrete tower on Nice Gül Burnu.

Kazıklı Limanı, the next bay northwestward of Alangul Burnu, trends 4 miles northeastward and then 1 mile northward. The outer part of the bay has depths of 25 to 20 fathoms. Before the bay turns northward it has a width of 1 mile and depths of 12 to 8 fathoms, mud, for anchoring. The southern part of the northern arm is only 600 to 400 yards wide and affords sheltered anchorage in depths of 6 to 4 fathoms. Kazıklı Harbor, the circular basin forming the head of this northern arm, has depths of 6 to 2 feet; in this basin is an islet.

The bold elevated land on the northwestern side of Kazıklı Limanı attains a height of 1,377 feet in Karanlık Dağ (Kaplan Dag). Northeastward of the head of the bay rises Mt. Grius (Grion) (Kazıklı Dag), 3,573 feet high and about 8 miles further northeastward is the Besh Parmak (Besparmak Dağ) Range 4,500 feet high.

8-190 Off-lying islet and shoals.—Kapota Ada, lying in the western approach to Kazıklı Limanı in a position $2\frac{1}{2}$ miles southwestward of the high land forming the northwestern side of the bay, is 184 feet high. Except for a narrow bank on its northern side this islet is clear of dangers.

Kapota Shoal, with a least depth of 4 fathoms, lies three-fourths of a mile eastward of Kapota Ada. Vessels passing between the shoal and the islet should keep the islet close aboard.

A 6-fathom shoal lies $1\frac{3}{4}$ miles south-southeastward of Kapota Ada.

8-191 NORTHERN SIDE OF MANDALYA KÖRFEZİ—Coast and dangers (H. O. Chart 4191).—Kapalı Burun (Cape Spratt) is the southwestern termination of the high land rising over the northwestern side of Kazıklı Limanı. Shallow water extends 300 yards from this cape. The coast between Kapalı Burun and Kavo Groeas, $1\frac{3}{4}$ miles northwestward, is bordered by shoal depths.

Isabel Rock, located $1\frac{1}{2}$ miles west-northwestward of Kapalı Burun and one-half of a mile south-southwestward of Kavo Groeas, is a steep-to rock with a depth of 3 feet over it. Mount Salta, located on the eastern side of Kazıklı Limanı, leads southward of this rock when bearing 108° and well open southward of Kapalı Burun. Xiphorima Point, the northwestern entrance point of Kazıklı Limanı, also leads southward of this rock when bearing 104° and open southward of Kapalı Burun.

Ikikat Rocks, having depths of 1 to 3 fathoms over them and depths of 4 to 12 fathoms close around them, lie with their outer edge 1,600 yards westward of Kavo Groeas, from which they are separated by depths of 15 to 5 fathoms. About 1,500 yards northward of these rocks and 1,200 yards off the shore is a $5\frac{1}{2}$ -fathom sounding. These dangers are on the eastern side of the fairway into Akbük Liman.

8-192 Akbük Liman (Basilicus Bay), about $2\frac{1}{4}$ miles wide in its entrance between the shore northward of Kavo Groeas on the east and Kyriaki Point on the west, extends 5 miles northeastward to low land at its head. The shore all around the bay is bordered by shoal water, which on the western side is interspersed with rocks. Besides being indented, Kyriaki Point has a large rock or islet, known as St. Kyriaki, standing on the shoal which extends 800 yards eastward from it. In the middle part of the bay toward the head are shoal patches with depths

of 5 to 3 fathoms, and in general the bottom is uneven.

Panağya Ada (Panayir Ad), the islet fronting the entrance, is located 1,400 yards southward of Kyriaki Point and on the southwestern extremity of a bank, as defined by the 10-fathom curve, that extends from the eastern side of the entrance to the bay. This islet has a shoal spit extending 500 yards eastward and a shallow rocky bank extending 500 yards northward of it.

A $2\frac{1}{2}$ -fathom shoal lies 1,500 yards northeastward of Panağya Ada, from which it is separated by depths of 5 fathoms. A large bank with minimum depths of 7 fathoms lies from $\frac{1}{2}$ to $1\frac{1}{2}$ miles southwestward of Panağya Ada.

Anchorage.—In the upper part of Akbük Liman, on the eastern shore, is the village of Akbük, and off it is anchorage in 6 to 10 fathoms, mud, southwestward of the shoal patches previously mentioned.

8-193 Directions.—A fairway of deep water which leads into the bay between Panağya Ada and Kyriaki Point may be used by small vessels. The summit of Kara Ada in range with the western side of Kapota Ada, bearing 177° , leads into Akbük Liman eastward of Panağya Ada and between the dangers on either side. When well within the entrance, a vessel may anchor in Kuru Erik Limanı, indenting the western shore within Kyriaki Point, or steer along the eastern side for the anchorage off the village of Akbük, avoiding the shore bank and the shoals in the northern part of the bay, for which the chart must be the guide.

Tek Ağaç Burnu (Cape Monodendri), the northern entrance point of Mandalya Körfezi, is 7 miles westward of Akbük Liman. The intervening coast, indented by Skrophes Bay and a few small coves, is bordered by shoal depths, which, 3 miles eastward of the

Tek Ağaç Burnu, extend one-half of a mile from the shore. A light is shown on Tek Ağaç Burnu.

The **Posidium**, a rocky shoal extending 600 yards in a north and south direction and having a least depth of 3 fathoms, lies $1\frac{1}{4}$ miles southeastward of Tek Ağaç Burnu.

8-194 MANDALYA KÖRFEZİ TO SAM-QS STRAIT.—The coast (*H.O. Chart 4191*) from Tek Ağaç Burnu to Kaba Hayit, $6\frac{1}{4}$ miles north-northeastward, is irregular and bordered by a narrow rocky bank; thence it takes the form of an irregular, broken up, shallow bight to Menderes Burnu, which is located 7 miles northward of Tek Ağaç Burnu.

Kovela Liman (Kovella Bay), the bay 3 miles northward of Tek Ağaç Burnu, recedes eastward for a distance of three-fourths of a mile. The southern shore is indented by three small, semicircular coves, and fragments of columns may still be visible at the head of the bay. A road leads to Yoran (Ieronta) and the ruins of Didymi, both on a hill southeastward of the bay, and thence to Skrephes Bay.

Pharmako and Gaidaro, the two fairly large off-lying islands along this part of the coast, are described in sections 8-160 and 8-161.

8-195 Menderes Burnu (Meander Point) is a low sandy projection, through which the Büyük Menderes Nehri flows into the sea. On the southern side of this point, as mentioned before, the coast is broken and falls back to the northeastward a considerable distance, leaving a large shallow opening, part of which is used as a fishery.

The Büyük Menderes Nehri, after a long and tortuous course from the eastward between mountain barriers, passes the ruins of Miletus at about 5 miles from the coast, and running southwestward enters the sea at Menderes Burnu. The depth of water

some distance within the mouth is 2 to 5 fathoms, but in the mouth itself the depth is only $1\frac{1}{2}$ feet with 2 fathoms outside. The Palaio Menderes or Meddro (ancient Goesus) joins the Menderes from the north-northeast a little below Miletus.

Caution.—The bar at the mouth of the Büyük Menderes Nehri is said to have extended considerably to the southward since the date of the last survey; therefore caution is necessary when approaching the entrance.

8-196 Coast.—Between Menderes Burnu and the base of the elevated range of Çan Dağı 10 miles northward, the coast, low and broken, has several lagoons open to the sea, used as fisheries. Swampy land extends some distance inshore from the coast, and 4 miles northeastward of Menderes Burnu is a hill, 335 feet high, the ancient Lade Island; this hill is now named Batmaz Tepeleri.

This part of the coast is bordered by shoal depths, and in places the 5-fathom curve is as far as 1 mile offshore, although one-half of a mile seaward of Menderes Burnu the depth is 25 fathoms.

8-197 Çan Dağı (Samsun Dagı), a range of mountains extending 15 miles in an east and west direction, rises suddenly from the low swampy land on the south to lofty summits, 3,966 to 4,130 feet high, and falls again on the north, where its base forms the southern shore of Kuşada Körfezi. Upon the rocky slopes toward the southeastern termination of this mountain range are the ruins of Priene (Samsun), located on a bold and precipitous rock; they consist of walls covering an extensive slope of the hill, out of which, as if built by art, spring perpendicularly the rocks on which the Acropolis was built. Priene is said to have been originally on the seashore. The elevated mass of Çan Dağı terminates westward in Dip Burnu (sec. 9-10).

CHAPTER 9

TURKEY—THE ISLAND OF SAMOS TO İZMİR KÖRFEZİ

9-1—SAMOS (*H. O. Chart 4193*), one of the several Greek islands located off the western coast of Turkey, is separated from the mainland by the Strait of Samos. This mountainous island has a length of 25 miles in an east and west direction and a maximum width of $10\frac{1}{2}$ miles. Mount Kerki (*Kerketevs Oros*), located at the western end of the island, rises to a height of 4,725 feet; its three barren peaks, about 250 yards apart, are composed of white rock, which reflects the rays of the sun and gives the appearance of snow. A small chapel stands on the southernmost peak. Mount Ampelos (*Ambelos*), a rounded summit, 3,730 feet high, stands near the middle of the island; its sides are covered with trees. Along the northern side of the island are some detached ranges and hills, for the most part covered with trees and vegetation, but in other places rising to bare peaks of fantastic shape and forming a sharp and picturesque contrast to the dark foliage of the higher ridges of the mountains behind them.

Numerous streams in the interior contribute to the fertility of the soil. The Mitelinous (*Mitilinos*) River flows into the sea a little eastward of Port Tigani, on the southeastern side of the island, and the Imbrasus (*Dhafnias*) River about $3\frac{1}{4}$ miles westward of that port. Both are considerable streams in the winter, but in summer they are either dry or turned into different channels for the purpose of irrigation. Another and rather considerable stream rises at the foot of Mount Ampelos, and, after winding among

the hills and turning many mills in its way, discharges into Maratrokampo Bay.

The island of Samos is free from off-lying dangers, and its coasts are generally steep-to. The best anchorage is along the southeastern coast, forming the Strait of Samos, and Port Vathi is suitable for large vessels.

The villages are numerous and scattered over the island, which has an almost exclusively Greek population, numbering about 52,000 (1961). The town of Limin Vathetos is the capital. Agriculture is the principal occupation of the inhabitants; grapes, tobacco, and grains are raised. Fishing is limited to the needs of the island.

The climate of Samos is remarkably healthful.

9-2 SOUTHERN SIDE OF SAMOS.—Cape Dominiko (*Ayios Dhomenikos*) ($37^{\circ}41' N.$, $26^{\circ}37' E.$, *H. O. Chart 4233*), the southwestern extremity of Samos, as well as the western limit of Maratrokampo Bay, is a narrow, steep-to, bold peninsula extending one-half of a mile in a southerly direction.

A light is exhibited from an iron beacon on a concrete base, the whole 20 feet high, on Cape Dominiko.

9-3 Maratrokampo (*Marathokambos*) Bay, the large bay taking up the greater part of the western half of the southern side of the island of Samos, is 10 miles wide in its entrance between Cape Dominiko on the west and Cape Neraki (*Arapis*) on the east, and recedes about $3\frac{1}{2}$ miles in a northerly direction. This bay is completely unpro-

tected from the south and southwest, from which directions bad weather is common during the winter, and during northerly winds violent squalls descend from the high land backing the bay. The depths are too great for anchoring, but along the middle part of the northern shore depths of 5 fathoms and less extend offshore as far as 600 yards, beyond which distance the depths increase suddenly.

Along the northwestern side of the bay are several smaller bays, separated from each other by small peninsulas. Two of these peninsulas are named Chondros Kavo (Khondros Kavos) and Makria Pounda. At the northeastern recess of the bay is the small bight of Peranisi (Palos), the landing place for the interior communities of Skoureika, Koumeika, Neokhorion, and Platanos. About $1\frac{3}{4}$ miles southeastward of Peranisi is the small bight of Limnionaki, the landing place for the inland communities of Spatharaioi and Pagondhas.

The best berth is about 600 yards offshore in a depth of 4 to 5 fathoms, sand, with the settlement at Maratrokampo Harbor in range 330° with the town of Maratrokampo, located on a hill about 1 mile in the interior. This anchorage is not recommended; even during moderate northerly winds the squalls coming down from the high land are dangerous.

9-4 Maratrokampo (Marathokambos) Harbor, located about midway along the northern shore of Maratrokampo Bay, is a small artificial harbor formed by two breakwaters. In 1963 the western breakwater was in ruins. Having depths of $2\frac{1}{4}$ to $1\frac{1}{2}$ fathoms, the harbor is available only for small craft.

9-5 The settlement at Maratrokampo Harbor has a population of about 200, and the town of Maratrokampo farther inland has 3,250 inhabitants. A supply of water is available if the aqueduct near the harbor is not dry. The settlement has custom, telegraphic, and telephonic facilities, and coastal steamers call.

9-6 Samo Pulo (Samiopoula), an inhabited island about 1 mile in length, lies 800 yards southwestward of Cape Neraki (Arapis), the eastern limit of Maratrokampo Bay, from which it is separated by a passage with depths of 20 to 25 fathoms. A sunken rock lies 200 yards northward of the northern extremity of the island, from which it is separated by depths of 5 fathoms. A small cove, named Ayia Pelayia, indents the western coast of the island. Located 600 yards west-northwestward of the northern entrance point of this cove and separated from it by depths of 5 fathoms is a rock, awash, and 200 yards southwestward of the southern entrance point of this same cove lies another rock with less than 6 feet of water over it.

Coast.—Between Cape Neraki and Cape Colonna (Kolona), $2\frac{1}{2}$ miles eastward, the coast of Samos is steep and uninhabited, the depths at a short distance offshore being great. About $1\frac{3}{4}$ miles northward of Cape Neraki rises the summit of Prophetes Elias (Ayios Ilias), 2,455 feet high.

9-7 STRAIT OF SAMOS (H. O. Chart 4191), called Sisam Bogazi by the Turks, separates the southeastern coast of the island of Samos from Çan Dağı, a mountainous peninsula projecting westward from the mainland. Leading into the southern part of Kuşada Körfezi from the south, this strait

has a minimum width of 1,800 yards in a position close eastward of Abanoz Adası.

The eastern and southern shores of the strait are described, respectively, in section 9-10 and section 9-35.

9-8 Anchorage in the Strait of Samos.—During northerly winds anchorage is possible in convenient depths along the northern shore of the Strait of Samos, especially between Aspros Kavo and Psili Point. The best berth is in 8 fathoms in the middle of the entrance to Misocampo Bay, and the inner part of Port Tigani affords complete shelter to small craft.

Currents.—In the Strait of Samos the current sets generally eastward, and sometimes attains a velocity of 3 to 4 knots; southward of Abanoz Adası it sets westward at times.

9-9 Directions.—When a vessel is entering the Strait of Samos from the south, the limits of the southern entrance to the strait are clear and conspicuous. For those approaching the strait from the northward, there is a conspicuous hill, 837 feet high, located northward of Port Mollah Ibrahim; when this hill is seen open eastward of Cape Prason, it appears as a double peak, resembling a saddle. This double peak, together with Çan Dağı (Samsun Dagħ), forms an excellent navigational mark for entering the strait.

On proceeding through the strait, vessels can pass either southward or northward of Abanoz Adası but the fairway northward of this islet is preferred, being wider, although heavy tide rips are encountered in it and not in the southern fairway. Large vessels should pass 400 yards northwards of Abanoz Adası to avoid the 5-fathom rocky shoal, previously described. Elsewhere in the strait navigation is safe at a distance of 500 yards offshore. During northerly winds the squalls in the strait are not as strong

as those off the western part of the island of Samos.

9-10 EASTERN SIDE OF THE STRAIT OF SAMOS.—Dip Burnu (Cape Kanapitza)

(37°40' N., 27°00' E), the westernmost point of the peninsula of Can Dağı, is located about 7 miles westward of the northern end of the lowland extending northward from Menderes Burnu, the intervening coast being the southern base of Can Dağı. From 1/2 to 1 mile south-southwestward of Dip Burnu are three islets, two of which lie in St. Paul's Port and Port St. Nikalao, respectively. Çil Adası (Theopori Islet), the westernmost islet, forms a salient point of the coast line, and is steep to on its seaward side. All three islets are connected to the mainland by shoal depths.

St. Paul's Port, immediately eastward of Çil Adası, is open to the southwest. It affords good anchorage to small craft. Port St. Nikolao, the cove immediately eastward of St. Paul's Port, affords good shelter to craft having a draft up to 5 feet.

The small bay immediately northward of Dip Burnu has a small barrack and a small concrete jetty to which local caiques up to 80 tons can lie.

9-11 St. Nikolo Point, located 1½ miles north-northeastward of Dip Burnu, is the northwestern extremity of the peninsula of Çan Dağı; the depths about 500 yards off the irregular intervening coast are great.

The coast eastward of St. Nikolo Point is described in section 9-35.

9-12 Islet—Shoal.—Abanoz Adası (Pagnagia Islet), a moderately low rocky islet located 700 yards northward of St. Nikolo Point, is separated from the southern shore of the strait by a fairway with a width of 400 yards and depths of 5 fathoms. The

fairway northward of the islet has a width of 1,200 yards.

A rocky shoal with a depth of 5 fathoms lies in the northern fairway in a position 700 yards north-northeastward of the northern extremity of Abanoz Adasi. With this exception the Strait of Samos is clear of dangers at a prudent distance offshore.

A light is shown on Abanoz Adasi.

9-13 NORTHERN SIDE OF THE STRAIT OF SAMOS—Coast—Islet.—From Cape Colonna (Kolona) ($37^{\circ}38' N.$, $26^{\circ}53'$

E.), the southernmost point of the island of Samos, as well as the western limit of the southern entrance to the Strait of Samos, the coast trends $1\frac{1}{4}$ miles northeastward to Aspros Kavos. Between these two capes the high land rises to a height of 935 feet. Depths of less than 5 fathoms extend 660 yards east-southeastward from Aspros Kavos.

Karavotra, a small rocky islet, lies one-half of a mile east-southeastward of Aspros Kavos. About 600 yards southwestward of this islet lies a small, detached, steep-to shoal, on which is a rock awash. The depths inshore of this islet and shoal are about 17 fathoms.

9-14 Tigani (Pithagorion) Bay, entered between Aspros Kavos and Glykora (Fonias) Point, $4\frac{1}{4}$ miles east-northeastward, recedes about $1\frac{1}{4}$ miles in a northwesterly direction. The western shore is high and rocky, but the northern shore is low. In the northwestern part of the bay the 10-fathom curve is as far as three-fourths of a mile offshore, and the 5-fathom curve about 800 yards offshore. Port Tigani is immediately westward of Glykora Point.

The Imbrasos (Dhafnias) River, dry in the summer, discharges into the northwestern part of Tigani Bay. North of its mouth are the ruins of Iraion, or the Temple of Juno, near which is the coastal settlement of Kolona, the landing place for the interior communities of Miloi and Pagondhas.

About midway along the northern shore is the settlement of Potokoki.

Temporary anchorage with considerable safety from northerly winds is possible off the settlement of Kolona.

9-15 Port Tigani (Pothagorion) ($37^{\circ}41' N.$, $26^{\circ}58' E.$), immediately westward of Glykora Point, consists of a small outer harbor and a small inner harbor. The inner harbor and a large part of the outer harbor are sheltered from the south by a breakwater extending 500 yards eastward from the southeastern extremity of a coastal projection located one-half of a mile westward of Glykora Point. Forming the eastern side of the inner harbor is a tapering mole that extends southward for a distance of 180 yards. The entrance to the outer harbor is 900 feet wide between the head of the breakwater and a small islet located off the northeastern shore of the harbor, and the entrance to the inner harbor is 375 feet wide between the light on the molehead and a white beacon which stands about 100 yards southwestward of the light structure. A dangerous shoal patch lies southward of the beacon. A pile is located off the tip of this mole and marks shoaling areas in the entrance of the inner harbor. The depths in the outer harbor are $4\frac{3}{4}$ to 2 fathoms, mud, as far as 300 yards northward from the breakwater, on which are some bollards. The inner harbor, with dimensions of about 700 by 500 feet, has depths sufficient only for small craft.

Foul ground exists alongside the breakwater about 100 yards from its head. A 33-foot shoal lies nearly 400 yards southeastward of the breakwater head.

It is reported that a vessel anchored in the outer harbor during strong southerly winds should run lines from the bow to the bollards on the breakwater, as the holding ground is poor.

The museum and the old ruined fort, both located close westward of the root of the breakwater, are conspicuous from seaward.

Lights.—A light is shown from an iron column, 20 feet high, on a hut, on Glykora Point.

A light is exhibited on the head of the breakwater at an elevation of 30 feet, from a hut with a mast 14 feet high.

A light is exhibited on the head of the mole.

9-16 Tigani (Tiganion), the town built northward and westward of the inner harbor, has a population of about 2,000. It has telephonic, postal, and custom facilities, and coastal steamers make regular calls.

The northern side of the breakwater is quayed; the western and northern sides of the inner harbor are quayed, totaling about 1,200 feet of berthing space, where small craft moor stern-to.

There is a small repair yard on the western side of the village.

9-17 Misocampo (Misokambos) Bay (37°42' N., 27°01' E.).—From Glykora Point the rocky and irregular coast trends 1 mile east-northeastward to the western limit of Misocampo Bay; it is fringed to some distance by shallows with sunken rocks. The land 1 mile inland of this coast rises to a height of 882 feet.

Misocampo Bay, which is rather open, is $1\frac{3}{4}$ miles wide in its entrance between the mouth of the Mitelinous River to the west and Psili (Katsouni) Point to the east, and recedes about one-half mile in a northerly direction. In the western half of the bay the 3-fathom curve is charted one-fourth of a mile offshore, and the 5-fathom curve one-half of a mile offshore.

During northerly winds good anchorage can be obtained in the middle of the entrance to Misocampo Bay in a depth of 8 fathoms, sand and mud. During the winter good drinking water can be obtained from the Mitelinous River, which is dry during the summer. Another good berth is one-half of a mile eastward of Glykora Point in a depth of 10 to 12 fathoms, mud.

9-18 Coast.—Between Psili Point and Gatitza Point, $2\frac{3}{4}$ miles eastward, the coast, forming the northern shore of the narrower part of the Strait of Samos, is in-

dented by several small bays and has considerable depths at a short distance offshore. Psili Ammos, the small bay immediately eastward of Psili Point, has an islet in its shallow western part. Klima Bay, entered $1\frac{1}{2}$ miles eastward of Psili Point, has depths of less than 5 fathoms extending 200 yards from its shores.

Port Mollah Ibrahim (Mola Imbraim Bay), the easternmost and largest of the bays indenting this coast, is separated from Klima Bay by Groepodi (Grias Podhia) Point, which should be given a berth of more than 200 yards. On this same point are the ruins of a tower. The firm bottom in the bay is good holding ground, but the depths are considerable. The small cove forming the northeastern recess of the bay has depths of 6 fathoms in its entrance, decreasing to 3 fathoms farther in; it can be used by small craft. This bay is used as a port for the inland settlement of Palaiokastron (1,000 inhabitants).

9-19 EASTERN SIDE OF SAMOS.—This side of the island of Samos is uninhabited. The greatest part of its length of 4 miles is indented by a large bay receding $2\frac{1}{2}$ miles westward between two high rocky peninsulas.

9-20 Gatitza Point (37°43' N., 27°04' E.), the northern entrance point of the Strait of Samos, is the southeastern extremity of a peninsula having a width of 1 mile and extending $1\frac{1}{2}$ miles eastward from the main body of the island of Samos. Cape Gatos, on which a light is shown, is located about $\frac{3}{5}$ mile northward of Gatitza Point, and about $\frac{1}{4}$ mile farther northward is Cape Korthrakia, the northeastern extremity of the peninsula. Near the outer end of the peninsula is a double peak, previously mentioned in section 9-9, as a good navigational mark for the Strait of Samos. Indenting the eastern

coast of this peninsula in a position immediately northward of Gatitza Point is Gaton (Gatos) Bay, a small bay with depths of 20 fathoms and depths of less than 5 fathoms extending 200 yards from its southern and western shores.

Bays—Islet.—The southwestern part of the large bay indenting the eastern side of the island of Samos has considerable depths, but shallows extend some distance from the southern shore at its head. Prasonisi, a small islet forming the northwestern limit of this southwestern part, is separated from the shore by a narrow and shallow channel.

The northern part of the above-mentioned large bay is known as Kolpos Mofthias but called Mourtia Bay by the Greeks. The western shore is indented by three smaller bays, named Mourtia, Mikri Lakka, and Megali Lakka; the northernmost, Mourtia, has depths of less than 3 fathoms in its greatest part.

9-21 Cape Prason (Prasso), the northeasternmost extremity of the island of Samos, is the termination of a high, bold, and craggy peninsula forming the northern side of the large bay indenting the eastern side of the island. This peninsula, formerly named Dumuz Burnu, trends $2\frac{1}{4}$ miles eastward from Mt. Zodoki (Zoodhokos Piyi), 1,228 feet high. The depths are great along the steep sides of this peninsula.

Shoals.—A rocky patch with a depth of 6 fathoms lies 300 yards eastward of Cape Prason, and farther eastward are located a 9-fathom and a 13-fathom patch.

9-22 WESTERN AND NORTHERN SIDES OF SAMOS.—The western side of the island presents nothing of interest to navigation; it is backed by the highest summit of the island. The northern side of the island, inhospitable for the most part, has near it great depths free from off-lying

dangers. The only anchorage worthy of mention is that in Port Vathi.

9-23 Coast (H. O. Chart 4233).—From Cape Dominiko (sec. 9-2) the whole western coast of the island trends $3\frac{3}{4}$ miles north-northwestward to Cape Katabasis (Katavasis), the westernmost point of the island. This coast is indented by several small bays and is free from dangers beyond a distance of 500 yards offshore.

Between Cape Dominiko and Tu Manulane Kavo (Manolaki Point), three-fourths of a mile north-northwestward, is formed a small bay open to the southwest. Ayios Ioannis, a small rocky islet in this bay, is connected to the northern shore by rocky shallows. That part of the bay eastward of the islet has great depths in its outer part and depths of 13 fathoms in its inner part.

Plaka, a small bay open to the west is located $1\frac{1}{4}$ miles northward of Tu Manulane Kavo. This bay has charted depths of 7 to 2 fathoms, and in the southern part of its entrance lies a detached rocky patch with a least depth of $1\frac{1}{4}$ fathoms. Dangers extend a short distance off a small extent of the coast immediately northward of the northern entrance point.

Commencing at Cape Katabasis the northern coast of the island of Samos trends first $3\frac{1}{4}$ miles northeastward and then 1 mile eastward to Port Zeitani, the depths being considerable at a short distance offshore. Agios Sideros (Ayios Isidhoros), a small cove open to the westward and suitable for small craft only, is located $1\frac{1}{2}$ miles northeastward of Cape Katabasis. This small cove serves as the port for the inland communities of Dhrakaioi and Kalambaktasi.

Port Zeitani (Seitani), located immediately eastward of a small point projecting north-northeastward for a short distance, is exposed and seldom used by small craft.

A chain of rocks, awash, extends about 700 yards northeastward from the small point, and a small part of the port within this chain has depths of 10 to 5 fathoms, the remainder of the port being shallow.

9-24 Karlovassi Harbor (Limin Karlovassiou) (37°48' N., 26°42' E., H. O. Chart 4190), located about 2¼ miles northeastward of Port Zeitani, is a small artificial harbor built immediately eastward of Pankosi (Pangozi) Point. The western breakwater extends from the northeastern point of Pankosi Point first north-northeastward and then east-northeastward for a total distance of 620 yards, and the eastern breakwater extends 280 yards in a north-northwesterly direction. The entrance, facing eastward, has a width of 150 yards. The area enclosed by these two breakwaters measures about 400 yards in a north and south direction and 300 yards in an east and west direction, and the depths in the greater part are about 22 feet. The harbor is available for vessels with a draft not exceeding 18 feet, and vessels, when entering or leaving the harbor, should keep to the northern half of the entrance. It is difficult and even dangerous for vessels to enter the harbor during bad weather, especially during strong northerly winds with an accompanying swell.

Lights.—A light is exhibited from an iron column on Pankosi Point.

A light is shown from a skeleton steel obelisk with an iron hut, on the head of the west breakwater.

A light is shown from a hut with mast, on the head of the east breakwater.

9-25 Anchorage.—The most suitable berth is about 400 yards eastward of the head of the western breakwater in depths of 15 to 20 fathoms, sand and weeds, with stern lines to the head of this breakwater.

Pilotage.—The services of a pilot are available. The jurisdiction of the pilot station extends one-half of a mile off the entrance.

9-26 TOWNS.—The settlement of Limin Karlovassiou (500 inhabitants) is built immediately eastward of the harbor, and on a hill inland of the harbor is the settlement of Palaion Karlovasi (500 inhabitants), which is not visible from seaward. Farther eastward of the harbor are Mesaion Karlovasi (1,400 inhabitants) and Neon Karlovasi (5,000 inhabitants). Agricultural products, especially grapes, are raised in the neighboring fertile region, and there is some manufacturing. Telephone, telegraph, postal and customs facilities are available. Coastal steamers make regular calls.

Repairs.—A small repair shop is located at the eastern end of the town.

Wharves.—The southern side of the harbor, as well as the inner side of the western and eastern breakwater, is quayed. The quay on the southern side of the harbor is about 240 feet long and has depths of more than 3 fathoms close off it; depths of 4 to 6 feet are available alongside the eastern breakwater and depths of 3 to 24 feet are available alongside the western breakwater. Small craft can moor stern-to. The harbor has a 50-ton floating crane and one 2½-ton crane.

Work was in progress (1962) eastward of the quay on the southern side of the harbor.

It is reported that 1 mile eastward of the harbor is a small pier with a length of 215 feet and a width of 10 feet.

9-27 Coast. (H. O. Chart 4190).—From Karlovassi Harbor the coast trends 3 miles east-northeastward to Kondaki Point; the depths are great 500 yards offshore. Immediately close southwestward of Kondaki Point stands a hospital for lepers, and immediately eastward of the point is Ayios Nikolaos, the landing place for the inland communities of Kondakeika, Kondeika, and Fournoi.

From Kondaki Point the coast with great depths 500 yards offshore trends 6 miles eastward to the point of Gurlotes (Avlakia) (Vurliotes), immediately westward of which is the settlement of Ayios Konstandinos, the landing place for the community of Avlakia and that of Nenedhes. Just southward of the point of Gurlotes is the bight of Avlakia, which serves as the landing place for the inland communities of Vourliotai, Ano Arvanites, Kato Arvanites, and Pirgos.

The point of Kokari, located about 2¼ miles southeastward of that of Gurlotes, has rocks and shallows extending about 350 yards northeastward from it. During west-

erly winds small craft can anchor off the town of Kokkarion (Kokari) (1,400 inhabitants), located immediately southward of the point. From the point of Kokari the coast with great depths 400 yards offshore trends $1\frac{3}{4}$ miles east-southeastward to the point of Kendron, the western entrance point of Port Vathi.

9-28 Port Vathi (Kolpos Vatheos) (entrance, $37^{\circ}47'$ N., $26^{\circ}57'$ E., H. O. Chart 4122, Plan E), the large bay indenting the eastern part of the northern side of Samos, is the principal port of the island. The bay recedes $2\frac{1}{2}$ miles in a southeasterly direction between high wooded land, and has a width of 1 mile in its entrance, narrowing within to about half of this distance but widening out again at its head. The depths in the entrance are considerable, but in the inner part of the bay they range from 20 to 6 fathoms. Malagari (Taverna) is the name of the point on the western side of the narrowest part of the bay, and on the eastern side of this same part is the point of Kachuni (Katsouni), from which a mole extends more than 100 yards in a southwesterly direction. The town is built along the northern and eastern sides, and some establishments are located on the western side, of the inner part of the bay. Some conspicuous warehouses stand on the point of Malagari.

Northwesterly winds in the winter and the Etesians in the summer send a heavy swell into Port Vathi. As the holding ground is good, vessels will not drag their anchors with ordinary precautions. The port is subject to heavy squalls from the surrounding hills. Strong northerly and southerly winds prevent vessels from mooring alongside the quays.

Lights.—A light is shown about $\frac{1}{3}$ mile eastward of Kotzikas Point, the eastern entrance point of Port Vathi.

A light is shown from the head of the mole at Kachuni (Katsouni) Point.

A wreck, with a depth of 5 fathoms over it lies about 50 yards southeastward of Kachuni Mole.

Winds.—Northwesterly winds predominate from March to October and often send in heavy swells. In winter, winds are variable.

9-29 Anchorage.—The best anchorage in Port Vathi is off the western shore of its inner part. A good berth here is off a conspicuous white house with a garden in a depth of 13 fathoms, mud, sheltered from the swell by the point of Malagari. Another good berth is 300 to 600 yards southwestward of the mole at Kachuni in depths of 15 to 17 fathoms, sand and mud.

Merchant vessels usually anchor in depths of 10 to 3 fathoms, mud, off that part of the town built along the eastern shore. A good berth for a large vessel is in a depth of 7 fathoms off the southern shore; here caution is necessary, as the depths decrease suddenly from 7 to 5 fathoms but more gradually from 5 to 2 fathoms.

The largest vessel to enter the port had a draft of 27 feet.

9-30 Pilotage is optional; only experienced seamen are available for pilot duties and if requested, will board vessel near the port entrance.

9-31 Directions.—If approaching Port Vathi from the northward, bring Çan Dağı to bear about 126° and steer for it on that bearing. Port Vathi will be identified by the lowest land under the saddle formed by the two peaks of Çan Dağı. Navigation in the bay is easy by keeping to its axis. There are no off-lying dangers along its shores except a $2\frac{3}{4}$ -fathom rocky patch in the bight indenting the outer northeastern shore but this danger is outside of the usual course.

9-32 LIMIN VATHEOS ($37^{\circ}45'$ N., $27^{\circ}00'$ E., *H. O. Chart 4122, Plan E*), the capital of the island of Samos, as well as the Department of Samos, had a population of 5,469 in 1961. It consists of two parts, the older part built along the northern and eastern sides of the inner part of the bay and Ano Vathi, the upper town, standing a short distance inland from the head of the bay. The town has a good export trade in wine, olive oil, raisins, and tobacco.

Water of good quality is available in limited quantities, except in the dry season, during summer and autumn. The town has telegraph, telephone, postal, and customs facilities. Coastal steamers make regular calls.

Berths.—The inner side of Kachuni mole has about 200 feet of useable berthing space with depths of 12 to 32 feet alongside and about 150 feet with depths of 6 to 12 feet alongside. Town Quay has 1,900 feet of berthing space with depths of 1 foot to 7 feet alongside. Several lighters are available.

Minor repairs can be made.

Hospital.—A state hospital is located in the port. **Meteorological table.**—See appendix II.

9-33 Coasts—Islets.—**Kotzikas Point** ($37^{\circ}47'$ N., $26^{\circ}58'$ E., *H. O. Chart 4190*), the eastern entrance point of Port Vathi, is the northwestern extremity of a high and massive peninsula extending $1\frac{1}{2}$ miles in a northwesterly direction and having an average width of three-fourths of a mile. Dascalio (Dhaskalio) Point, located $2\frac{1}{4}$ miles east-northeastward of Kotzikas Point, is the northeastern extremity of another high and massive peninsula extending 1 mile in a northerly direction and having a width of one-half of a mile.

Between the preceding two peninsulas is a bay open to the northwest. The depths in the outer and wide part of this bay are too great for anchoring, and they range from 11 to 5 fathoms in the inner and narrow part, where shallows extend some distance from the southeastern shore. Three rocky islets lie in the greater part of the entrance to this bay. Ayios Nikolaos, the largest and middle islet, lies 500 yards westward of the northwestern extremity of the peninsula of Dascalio Point, and in the eastern part of the channel between this islet and the peninsula is the much smaller islet of Dhiaporti, with sunken rocks extending a

short distance from its western side. Thas Kalio (Dhaskalio), the third rocky islet of the group, lies 500 yards west-northwestward of Ayios Nikolaos, and the greater part of the channel between them has depths of 10 to $4\frac{3}{4}$ fathoms extending 500 yards southeastward from Thas Kalio.

Maratro Islet (Makronisi), which is rocky, lies one-third of a mile east-northeastward of Dascalio Point, and in the middle of the channel separating them is the smaller islet of Maratri, from which depths of 3 fathoms extend southeastward for a short distance.

Between Dascalio Point and Melisubrala (Melissovrakha) Point, $1\frac{3}{4}$ miles southeastward, the northern coast of the island recedes southwestward to form a bay. At the head of this bay is a projecting point, named Kavos Nisi, from which shallows extend about 200 yards. That part of the bay northward of this point is called Ayia Paraskevi, while that part to the southeastward is called Galazo. Commencing at Melisubrala Point and trending $2\frac{1}{2}$ miles eastward is the steep-to northern coast of the peninsula terminating in Cape Prason (sec. 9-21).

9-34 KUŞADA KÖRFEZİ (GULF OF SKALA NUOVA) (*H. O. Chart 4190*), a large gulf indenting the western coast of Turkey, has a width of 24 miles between the southern shore of the Strait of Samos on the south and Belemo Islet on the north. The large island of Samos fronts the southern part of this gulf.

9-35 SOUTHERN AND EASTERN SIDES OF KUŞADA KÖRFEZİ—**Coast** (*H. O. Chart 4191*).—Between St. Nikolo Point (sec. 9-11) and the village of Ghiour Changli (Güzelyamli), $9\frac{1}{2}$ miles east-northeastward, the southern shore of the gulf is bold, rugged, and steep-to, being formed

by the northern base of Çan Dağı. The western half of this shore is also the southern shore of the Strait of Samos, which commences at Zeytin Burnu (Kukura Point).

Commencing at Ghiour Changli, where a stream flows into the sea, the shore becomes low and curves first northeastward and then northward for a total distance of 7 miles and then 1 mile westward to Aslan Burnu (Arslan Point). It is bordered by shoal water, which along the northern part extends offshore as far as 500 yards. Along this partly cultivated coast the hills are from 1 to 2 miles inland, but an isolated hill with the ruins of a fort on it stands near the sea $2\frac{1}{2}$ miles south-southeastward of Aslan Burnu.

A submarine pipeline extends about $\frac{1}{4}$ mile south-southwestward from a position on shore about $\frac{1}{2}$ mile eastward of Aslan Burnu. Two lighted mooring buoys are near the seaward end of the pipeline.

9-36 Dangers.—From Aslan Burnu the shore trends $2\frac{1}{4}$ miles northward to Yılançı (Yalanghi) Burnu, a cliffy point, and is bordered by a narrow shoal bank. About midway between these two points and on the shoal bank, which here extends offshore about $\frac{3}{4}$ mile, is Kargi (Kargan) Adası, a small islet. Karakaçı Bankları (Xerata Kargan Adası Reef), an extensive reef with depths of $1\frac{1}{4}$ to $2\frac{1}{4}$ fathoms over it, lies west-northwestward of Kargi Adası, and is separated from the coastal bank by a narrow channel with a depth of $5\frac{1}{2}$ fathoms.

Petroma Reef, with depths of less than 6 feet in places and $2\frac{1}{2}$ fathoms at its outer extremity, extends about 1,200 yards westward of Yılançı Burnu, from which it is separated by a narrow channel available for coasters with local knowledge. As both Karakaçı Bankları and Petroma Reef are steep-to, which would make soundings of no value, this part of the coast should be given a wide berth.

9-37 Kuş Adası (Güvercin Ad) ($37^{\circ}52'N.$, $27^{\circ}16'E.$, H.O. Chart 4191), a small islet,

lies 565 yards northeastward of Yılançı Burnu. The passage southward of this islet is 245 yards wide and has a least charted depth of 8 feet. The islet is surrounded by a wall, and near the middle of the islet stands a tower.

A light is shown from the northwestern part of Kuş Adası.

Shoal.—A shoal with a least depth of 3 fathoms lies 1.05 miles $281\frac{1}{2}^{\circ}$ from the light on Kuş Adası. This shoal extends 200 yards in an east and west direction.

9-38 Ak Burun (Aspros Kavo), a remarkable projecting point with white cliffs, is located 1,800 yards northeastward of the islet of Kuş Adası, and the shore between them recedes slightly to form Kuşadasi Roads. On the southern shore of the roads is the town of Kuşadasi.

A shallow rocky shoal extends about 440 yards southwestward from Ak Burun, and depths of less than 6 fathoms extend 300 yards farther in the same direction.

9-39 Anchorage.—Kuşadasi Roads affords anchorage in depths of 15 to 16 fathoms, soft mud, between Kuş Adası and the shoal extending from Ak Burun. The roads is exposed to winds from north, through west, to southwest. During the summer the sea breezes invariably blow, sometimes having considerable strength and always sending in a heavy sea. It is reported that even during flat calm weather a swell sets into the anchorage. Although the holding ground is good, the roads is not considered safe for large vessels. Coasters obtain shelter under the lee of Kuş Adası.

9-40 Kuşadasi (Skala Nuova) ($37^{\circ}52'N.$, $27^{\circ}15'E.$), a town of about 3,000 inhabitants, is built partly on level land and partly on the slope of a hill. The Greek quarter on the hill, reported to be in ruins, has a stream running through it, while the Turkish quarter on level land is surrounded by a wall. Fresh meat and fruit are available in moderate quantities; good water is available only in small quantities. The town has telephonic and telegraphic service to İzmir.

At the town a pier extends 250 yards northwestward from the shore; there are depths of 24 to 36 feet at the outer part of the pier and from its root a mole extends about 150 yards northeastward to form the northwestern side of the boat harbor.

9-41 Kuchuk Menderes River (Küçük Menderes Nehri) (*mouth, 37°57' N., 27°18' E., H. O. Chart 4190*), the river discharging into the sea 5 miles northward of the town of Kuşadası, is fronted by a bar and obstructed by fishing weirs. The stone embankments, which once confined the river, are still visible in many places. Depths of 10 to 18 fathoms, mud, are found one-half of a mile off the mouth. The land in the vicinity of the mouth is low and covered with rushes, but a hill, 750 feet high, rises $\frac{1}{4}$ mile southeastward of the mouth.

The extensive ruins of Ephesus, at one time the largest and most frequented city in Asia Minor, but now presenting little but scattered and mutilated remains of its ancient grandeur, are located on the southern bank of the Kuchuk Menderes, about 3 miles above its mouth. Christianity was established in the city by St. Paul, and Ephesus became one of the seven churches of Asia. St. John resided here, and probably died here; his tomb is shown near the quarries on Mount Prion. A little way above the site of Ephesus is a bridge of seven arches, through which the river winds clearly and without impediment. The sides of the mountains are in some places very precipitous and in others 'scooped into hollows filled with large trees.

9-42 Anchorage.—For the purpose of visiting Ephesus, temporary anchorage in less than 10 fathoms can be taken during fine weather on the bank extending seaward from Kavo Mikron Taliane (Kucuk Dalyan Burnu), a point located $1\frac{1}{4}$ miles northward of the mouth of the river. Within the point are the ruins of a bridge. The ruined bridge should be brought to bear 064°, distant about

1 mile, a square ruin (St. Paul's Prison) on a hill, 875 feet high, about 109°, and the entrance to the Kuchuk Menderes and place of landing 128°, distant $1\frac{1}{4}$ miles. When approaching the berth, a vessel should sound constantly. This anchorage is considered preferable to that of Kusadasi Roads. It is advisable to land on the northern side of the river and to cross it about one-half of a mile up where it is 40 yards wide, in a ferryboat. It is about an hour's walk from the beach to St. Paul's Prison and an hour and a half to the center of the ruins near a large archway.

9-43 Ephesus (Selçuk).—The population of the present village is only about 400; it is an unhealthy place. The village has a telegraph office and railroad connections with İzmir and Aydın (Dinai).

9-44 NORTHERN SIDE OF KUŞADA KÖRFEZİ—Coast (H. O. Chart 4190).—From the Kuchuk Menderes River the coast trends first northward and then westward in a curve for 5 miles to Ghiour Kioi Bay. The part trending northward is low, and southward of the ruined bridge, already mentioned, is a large lagoon, which has an outlet to the sea, and which has behind it a plain that becomes a marsh in the winter. The low shore is bordered by a bank extending offshore one-half of a mile and having irregular depths.

9-45 Ghiour Kioi Bay (Gâvur Köy Limanı).—In case of necessity this bay affords anchorage during offshore winds. A berth westward of the village should be selected, as elsewhere, the depths are too great for anchoring. A good road connects the village with İzmir.

Coast.—Between Ghiour Kioi Bay and Cape Bugali, $5\frac{1}{2}$ miles west-northwestward, the rocky and elevated coast is irregular, be-

ing indented by several small bays with ruins and villages.

Cape Bugali (Boğalı Burun), the eastern limit of Lebedos Bay, is the extremity of a tongue of land extending 500 yards to the southward from the mainland.

9-46 Lebedos Bay, indenting the western half of the northern shore of Kuşada Körfezi, is 10 miles wide in its entrance between Cape Bugali on the east and Bolemo Islet on the west, and recedes as far as $3\frac{1}{4}$ miles in a northerly direction. The entire bay is backed at a distance of 3 to 4 miles inland by mountainous land, Mt. Alewan, over the eastern part, being 2,940 feet high. Vessels can anchor within one-half of a mile of the shore, but elsewhere the water is rather deep for anchoring.

The Malkeji River (Çam Burnu Çayı) discharges into the bay 4 miles northwestward of Cape Bugali. About one-half of a mile southward of the low delta of the river lies the islet of Pondiko (Siçan Adası), the depths between them being 18 fathoms. At the middle of the head of the bay is a small round projection, once the islet of Xingi (Kısık Yarım Adası), united to the beach by a neck of sand with some ruins on it, and on the adjoining shore are the ancient ruins of Lebedos, from which the bay takes its name.

9-47 Hypsili Islet (Doğan Bey Adası), 186 feet high, lies 1,100 yards southeastward of Doğan Bey Burun, the termination of the promontory forming the western side of Lebedos Bay, and the passage separating it from the promontory has depths of 10 to 20 fathoms. Some rocks above water lie close to the southern point of the island.

A rock above water lies 400 yards eastward of Hypsili Islet. Between them the depth is 5 fathoms, and close eastward of the rock is a depth of 9 fathoms.

9-48 Bolemo Islet (Kormen Adası) ($38^{\circ} 02' N.$, $26^{\circ} 53' E.$, *H. O. Chart 4190*), the

bold and rocky islet located close off the western side of the termination of the promontory forming the western side of Lebedos Bay, forms the western limit of this bay, as well as the northern entrance point of Kuşada Körfezi. Shoal depths extend 200 yards westward and southward from this islet, which fronts a small cove having a depth of 3 fathoms. This cove has some hot springs at its head. The mainland 3 miles northward of Bolemo Islet attains a height of 910 feet, and $1\frac{3}{4}$ miles farther northward it is 1,345 feet high.

Caution.—See "Regulations," section 9-126, which restrict the visit of vessels to certain ports on the coast of Turkey between Pondiko Islet in Lebedos Bay, and Uzun Avlı Koyu (Ursum Avlı).

9-49 SIGHAJIK BAY (SIGACIK KÖRFEZİ), entered between Bolemo Islet and Cape Koraka, 14 miles west-northwestward, recedes $9\frac{1}{2}$ miles in a northerly direction to its head, where the width is $6\frac{1}{2}$ miles. The depths are great except near the shore and in the approach to Sığacık Harbor, located at the eastern end of the head of the bay.

Ovraeo Kalessi (Çifit Kalesi) ($38^{\circ} 03' N.$, $26^{\circ} 53' E.$, *H. O. Chart 4190*), a bold projection, 190 feet high, with ruins on it, lies 1 mile northward of Bolemo Islet. It is joined to the mainland by a neck of land, having a bay on either side. In the northern bay coasters anchor off a sandy beach in depths of 4 to 2 fathoms.

Palamo Islet (Palamut Adası), small and having some ruins on it, lies close off the shore 5 miles northward of Ovraeo Kalessi.

9-50 Malkiar Bay (Malkaya Limanı) is entered $1\frac{1}{2}$ miles northwestward of Palamo Islet. Malkiar Head (Malkaya Burnu), the southeastern limit of the bay, consists of green cliffs, which make it conspicuous, and is bordered by shoal water. This bay is sep-

arated from Teos Bay, immediately north-westward of it, by a shallow rocky spit extending over 1 mile southward from the head of the bay. On this spit are three islets: Hadji Futi (Kanlı Ada), the innermost and largest one, has some ruins on it, and the two Aspro Islets (Küçük Adalar), the outer ones, have white cliffs. The bay has depths of 10 to 5 fathoms, but it, as well as Teos Bay, is exposed to the south.

Teos Bay (Teos Liman) has depths of 10 to 5 fathoms, but in the middle of its entrance, about one-half of a mile westward of the southern part of Hadji Futi Islet, lies a 3-fathom shoal. On the plain northward of the head are the ruins of Teos.

Chelik Point (Killik Burnu), the outer western entrance point of Teos Bay, is bold and steep-to. From this point the irregular coast, about 200 feet high, trends $2\frac{1}{4}$ miles northward to the entrance of Sığacık Harbor, and 500 yards off this shore the water is deep.

9-51 Sığacık (Sighajik) Harbor ($38^{\circ}12'$ N., $26^{\circ}47'$ E.), at the eastern end of the head of located at the eastern end of the head of Sighajik Bay, recedes 1 mile in a southeasterly direction and has an average width of 600 yards. In the entrance between Eşek Ada to the southwestward and the bold coast of the mainland to the northward are depths of 14 to 10 fathoms, while in the inner part of the harbor are depths of 8 to 6 fathoms. The 3-fathom curve is 100 yards off the town at the head of the bay, and farther northward of the town its distance offshore increases gradually to 400 yards.

Eşek Ada (Sighajik Island), forming the southwestern side of the entrance, lies 440 yards westward of Kybleh Point (Kible Burnu), the northern termination of the mainland forming the southwestern side of the inner harbor. In the channel separating the island from the mainland are general

depths of 2 to $2\frac{1}{2}$ fathoms, but nearly in midchannel lies a rocky shoal with a depth of 3 feet. Island Reef extends about 100 yards northwestward from the northwestern extremity of the island. Kybleh Point in range 114° with the southern side of Ancient quarry, resembling the frustum of a cone and having a height of 200 feet, leads about 60 yards northward of Island Reef. On this bearing, Kybleh Point is also in range with the summit of a hill, 405 feet high, located $3\frac{1}{2}$ miles east-southeastward of the head of the harbor.

9-52 Anchorage.—Vessels can anchor in the middle of the harbor in depths of 8 fathoms, sand and mud, good holding ground. Vessels are well sheltered in the harbor, and during fine weather a berth can be taken outside of the harbor in depths of 20 to 15 fathoms west-southwestward of Eşek Ada.

Directions.—Although Sığacık Harbor is not easily distinguished from a distance, its entrance will be known by a deep valley, appearing as an opening in the land, 2 miles westward of the harbor. A white patch near the top of a hill on the western side of the valley is a good landmark from the southeast.

9-53 Sığacık (Sighajik), located at the southern end of the head of the harbor, is of some commercial importance, because sailing vessels unable to reach İzmir on account of strong northerly winds anchor in the harbor and send their goods overland to that city. Provisions and water are procurable.

9-54 Northern and Western Sides of Sighajik Bay (*H. O. Chart 4190*).—The northern and western shores of Sighajik Bay are indented by several small bays or coves.

Port Erekevi (Demircili Bodrumu) ($38^{\circ}13'$ N., $26^{\circ}42'$ E.), the small bay entered $4\frac{1}{2}$ miles westward of Sığacık Harbor recedes one-half of a mile in a northerly direction and

has depths of 10 to 7 fathoms. At the head of the bay is a sandy beach.

Port Vromo (Gök Liman), entered 2 miles northward of Cape Koraka, indents the western shore for a distance of 1 mile in a northwesterly direction and has depths of 25 to 10 fathoms in its middle part with deep water close to the shore. Coasters occasionally use the port during bad weather. During a full gale the water in the port is barely ruffled.

Port Vromo is difficult to distinguish from seaward. Entrance is difficult for a large vessel, but the port can accommodate a large vessel.

Some conspicuous white marks are visible on the western side of Sighajik Bay in a position 2 miles northward of Port Vromo.

9-55 Cape Koraka (Teke Burnu), the western entrance point of Sighajik Bay, is a bold headland rising one-half of a mile inland to a height of 1,280 feet. This cape is the southern termination of a spur from Mt. Korykos (Kıran Dağ), 2,328 feet high, located inland at a distance of $5\frac{1}{2}$ miles. Viewed from any seaward direction the cape is prominent. The water is deep close to the cape, in the vicinity of which baffling winds are encountered. A light is shown on Cape Koraka.

9-56 SIGHAJIK BAY TO KHIOS STRAIT.—Kavaki Bay (Kavaklı Liman) ($38^{\circ}08' N.$, $26^{\circ}36' E.$, *H. O. Chart 4190*), located immediately westward of the headland of Cape Koraka, recedes $1\frac{3}{4}$ miles in a northerly direction and narrows gradually from a width of three-fourths of a mile in the entrance toward the head. The depths also decrease gradually from 56 fathoms in the entrance to 3 fathoms off the shore at the head. Although the greater part of the bay is open to the wind and swell from the south, local caiques obtain all-weather shelter at its head.

9-57 Port Sikia (Sykia) (Incir Limani) (Sarpdere Limani) ($38^{\circ}11' N.$, $26^{\circ}32' E.$, *plan on H.O. Chart 4231*) is entered 4 miles northward of Kavaki Bay, from which it is separated by an irregular but steep-to coast. Having a minimum width of 600 yards, this bay extends 1,600 yards in a northeasterly direction to its head, divided into two arms with streams discharging into them. Although open to the southwest, this bay affords anchorage to small vessels from this direction in a small inlet just within the southeastern entrance point, the depths being 7 to 3 fathoms.

Port Sikia can be recognized by some white cliffs on the northwestern side of the entrance.

Caution.—Owing to the imperfect nature of the survey, the plan of Port Sikia must be used with caution.

9-58 Port Mersin (Mersin Körfezi) ($38^{\circ}13' N.$, $26^{\circ}27' E.$, *plan on H. O. Chart 4231*) is located 3 miles west-northwestward of Port Sikia. The coast between them is rugged and steep-to, and about midway is indented by a small bay with general depths of 7 fathoms. The port recedes $1\frac{1}{2}$ miles in a northwesterly direction, and has a width varying between 1 to $\frac{1}{2}$ mile and depths of 12 to 6 fathoms. Shelter is available from all but south-southeasterly winds, which enter through the narrow entrance.

Three islands lie in the entrance to Port Mersin. The two inner islands are separated from the shore nearest them by foul ground, and a small islet lies about midway between them, being separated from the western island by a 3-fathom shoal. Tavates Island (Dümbelek Adaları), the outer of the three, is separated from the island northwestward of it by a passage with a width of 600 yards and a depth of 4 fathoms. Coming from the westward, small vessels can pass between these two islands

by avoiding a rocky shoal with a least depth of less than 6 feet lying nearly in the middle of the passage but closer to Tavates Island. Large vessels should pass southward of Tavate Island and then eastward of the small islet between the two inner islands, this latter fairway being 250 yards wide and 11 fathoms deep. As a reef with rocks above water extends 400 yards south-southwestward from Tavates Island, the island should be rounded at a safe distance.

Caution.—Owing to the imperfect nature of the survey, the plan of Port Mersin should be used with caution.

9-59 Port Egrilar (Eğriler Limanı) (Alaçatı Limanı) (entrance, $38^{\circ}14' N.$, $26^{\circ}24' E.$, plan on *H. O. Chart 4231*) is entered 3 miles northwestward of Port Mersin, from which it is separated by a rather straight coast that must not be approached too closely. The port recedes $2\frac{1}{4}$ miles in a northerly direction and has a width of 1.1 miles in the entrance, inside of which the width becomes about half of this distance. The general depths are 16 to 6 fathoms, mud, but the shores everywhere are bordered by shallow water, especially at the head where a large area nearly dries. Vessels should exercise caution to keep in mid-channel, as the soundings are not in sufficient detail, and there are no good range marks for clearing the shoals, which on a bright clear day are clearly indicated by the discoloration of the water.

Boz Alan Burnu, the eastern entrance point of the port, has a white cliff, close within which rises a hill, 146 feet high. On the western side, one-half of a mile within the western entrance point, is a sharp peak, 264 feet high. The land on either side of the port is hilly, but at the inner part it is low, being dry in the summer and marshy in the winter, at which season a stream discharges at the head.

The deserted village of Egrilar (Eğriler), a prosperous Greek trading port prior to 1922 but now a heap of rubble, stands on the western shore near the head of Port Egrilar. A customhouse is maintained here, and telephone service is available to İzmir. Alaçatı (Latzata), a town located $1\frac{1}{2}$ miles northward of this deserted village, is hidden from view by a range of hills; a rough cart road leads to it.

9-60 Coast (*H. O. Chart 4190*).—Between Port Egrilar and Ak Burum, 7 miles west-northwestward, the coast should be given a wide berth, as the soundings are irregular and shoal depths exist some distance offshore in places. In the wide bight eastward of Ak Burun are four small rocky shoals lying 1 to 2 miles from the Wedge, the southern extremity of the cape; separated from each other by deep water, these shoals from west to east have depths of $1\frac{1}{2}$, 1, 4, and 3 fathoms.

9-61 Ak Burun (Cape Bianco) ($38^{\circ}16' N.$, $26^{\circ}15' E.$, *H. O. Chart 4190*), as its name implies, respectively, in Turkish and in Italian, consists of white cliffs of moderate elevation, conspicuous from the southwestward. For a short distance along the southwestern face of the cape is a rocky bank extending offshore for a distance of about 200 yards.

9-62 Anchorage.—Anchorage is available southeastward of Ak Burun in any convenient depth, sandy bottom. This anchorage is much frequented, especially by sailing vessels unable to get through Khios Strait during strong northerly winds. Vessels anchoring here should be prepared to get under way before a southerly wind sets in, and care should be taken to avoid the rocky shoals, already mentioned with the bight eastward of the cape, by choosing a berth in a depth of not less than 10 fathoms at a distance of one-half of a mile from the

cape. If a berth is selected farther south-eastward, a vessel should not go inside a line between the extreme points of the bight or within a depth of 16 fathoms.

Khios Strait is described in section 9-91.

9-63 KHIOS (*H. O. Chart 4189*), one of several Greek islands located off the western coast of Turkey, is separated from the mainland forming the western side of İzmir Körfezi by Khios Strait. This large island extends 27 miles in a north and south direction and varies in width from 7 miles in the middle to 15½ miles in the northern part and 12 miles in the southern part. Mountainous and rocky for the most part, the island attains its maximum height of 4,255 feet in Mt. Ayios Ilias (Profitis Ilias), or Pelinaion Oros, located at its northern end; southward of this summit the mountains gradually decrease in height. The southern half of the island has some flat areas. The somewhat irregular coast has in places shallow depths extending offshore for a short distance; therefore vessels navigating along this island do not encounter difficulties. Several anchorages are available along the southern, western, and northern sides of the island, but the preferable anchorage is in Khios Strait, where is located the principal harbor.

It has been reported that the island of Khios is a good radar target with an echo range of 12 miles under normal conditions.

In 1951 the island of Khios had a population of about 62,200. The principal occupation of the inhabitants is navigation and fishing. Some manufacturing is carried on in the capital city of Khios, and agriculture shows a constant development, some of the products being mastic, grain, and tobacco. The climate is mild and healthy.

Currents.—The current off the southern end of the island of Khios is strong and uncertain in direction. It sets generally northward in the Bay of Kalamoti and along the western side of the island.

9-64 SOUTHWESTERN SIDE OF KHIOS.—Cape Mastikho ($38^{\circ}09' N.$, $26^{\circ}02' E.$, *H. O. Chart 3990*), the southern extremity of the island, is a steep-to, bold headland, which shows up well even at night. Less than 1 mile northward of the cape rises a hill, 960 feet high.

A submarine exercise area is centered about 13 miles southeastward of Cape Mastikho.

Venetiko, a high, steep-to, cone-shaped islet, lies 1¼ miles southward of Cape Mastikho, from which it is separated by a deep channel clear of dangers. This islet is conspicuous to vessels approaching Khios Strait from southward.

A light is exhibited from a white iron beacon with a concrete base, the whole 10 feet high, on the summit of the islet of Venetiko.

9-65 Coast.—From Cape Mastikho the southwestern coast, precipitous for the most part, trends 9½ miles northwestward to Cape Mesta (Amista), the southwestern extremity of the island. No dangers exist more than 800 yards offshore. Although this coast is indented by several small bays, none afford anchorage worthy of mention.

Port Kato Fanas, a small narrow bay with a depth of 5 fathoms in its inner part, is located about midway along the southwestern coast. Close off the coast immediately northwestward of this bay are two small islets, and the point 2 miles northwestward of the bay has rocks and shallows extending 800 yards southward from it. Another small islet lies close off the coast in a position 1 mile southeastward of Cape Mesta.

9-66 WESTERN SIDE OF KHIOS.—This side of the island, which has a length of 18½ miles between Cape Mesta to the south and Cape Ayios Nikolaos to the north, is indented by a large bight. Several islets lie a short distance off the shore in the southern part of the bight. The promontories bear a close resemblance to each other. Mesta Bay and Volissos Road afford anchorage; both, however, are suitable only

for small vessels. With the exception of Mesta and Volissos, the principal villages are on the eastern side of the island.

Coast.—From Cape Mesta ($38^{\circ}15' N.$, $25^{\circ}53' E.$, *H. O. Chart 4189*), rather high and steep-to, the coast trends 4 miles north-eastward to the entrance of Mesta Bay. Xilopetra, a brown rock above water, lies $1\frac{1}{2}$ miles north-northeastward of Cape Mesta and 300 yards off the coast, to which it is practically connected by shallows. Markrilopetra, a black rock above water, lies three-fourths of a mile northeastward of Xilopetra and 800 yards off the coast, from which it is separated by deep water.

9-67 Mesta Bay, the westernmost of several small inlets indenting the southern shore of the large bight on the western side of the island of Khios, recedes 1 mile southward and has an average width of 600 yards. The outer part of the inlet has considerable depths, but the inner part affords anchorage to small vessels in depths of less than 10 fathoms. As sunken rocks extend northward from both entrance points, as far as 500 yards from the western one, vessels intending to enter the inlet should begin to steer a course for the axis from a position one-half of a mile off the entrance. The recognition of the inlet is simplified by an ancient watch tower standing on its western side. At the head of Mesta Bay are a very small jetty and a few houses, which serve as the port for the inland village of Mesta (900 inhabitants). Custom facilities are available.

A light is shown on the western entrance point of Mesta Bay.

9-68 Aspro Islet, located 1 mile north-eastward of the entrance to Mesta Bay, is the largest and outermost of three islets located in the southeastern recess of the large bight. Ayios Stefanos, the two inner rock islets lying close together in a position one-half of a mile east-southeastward of that of Aspro, front the small inlet of Ayios Sostis, from

which they are separated by depths of 11 fathoms. Small craft can obtain temporary anchorage in the lee of these islets.

Rock—Coast.—A rock above water lies 1 mile northeastward of the eastern extremity of Aspro Islet and one-half of a mile off the coast to the eastward; about midway between this rock and the coast is a $2\frac{1}{2}$ -fathom patch.

About $1\frac{1}{4}$ miles northeastward of the rock above water is the entrance to a small and shallow inlet open to the north-northwestward. This inlet has a sandy beach with a small jetty. The village of Lethe (Lithion) is located one-half of a mile up a valley extending southward from this inlet.

9-69 Alinda (Alounda) (Aluntha) Bay, entered $4\frac{1}{4}$ miles north-northeastward of Aspro Islet, is a narrow inlet receding three-fourths of a mile in a north-northeasterly direction and having depths of 11 to 8 fathoms in its inner part. This inlet is suitable only for small vessels. The water from the springs at the head is salty.

9-70 Volissos Road, located $5\frac{1}{2}$ miles north-northwestward of Alinda Bay, is the area forming the northeastern recess of the large bight indenting the western side of the island of Khios. A small rocky islet lies close off the northern shore of this roadstead, to which it is connected by a reef. Sunken rocks extend 500 yards northeastward from this islet, and also a short distance from the mainland east-southeastward of the islet. This roadstead can accommodate several small vessels, and the best berth is with the old castle on a hill $1\frac{1}{4}$ miles northward of the islet bearing 000° and the northwestern extremity of the roadstead, a point $1\frac{1}{2}$ miles westward of the islet, bearing 296° .

A light is shown on a point, in a position about $\frac{1}{2}$ mile east-southeastward of the above-mentioned rocky islet.

9-71 **Limia.**—On the northern shore of Volissos Road is the settlement of Limia, which is the port for the inland town of Volissos (2,500 inhabitants), an agricultural center. There is about 400 feet of quays. Custom facilities are available. Coastal steamers call, but sometimes during the winter they are prevented from stopping by strong southerly winds.

9-72 **Cape Ayios Nikolaos**, located 5 miles northwestward of the northwestern limit of Volissos Road, is the northwestern extremity of the island of Khios. This cape can be identified by a round tower on its highest part. Shallows extend 600 yards from the cape, and similar depths extend in places from the coast between a position three-fourths of a mile southward of the cape and Cape Melaina, $2\frac{1}{4}$ miles northeastward of the cape.

During southeasterly gales the squalls off the Amani Mountains, located eastward of Cape Ayios Nikolaos, are severe; therefore vessels navigating the channel between the island of Khios and that of Psara should give the land in the vicinity of the cape a wide berth.

The northern coast of the island of Khios is continued in section 9-83.

9-73 **PSARA ISLAND** (*plan on H. O. Chart 4157*), located $9\frac{1}{2}$ miles westward of the northwestern part of the island of Khios, from which it is separated by a deep passage clear of dangers, extends $4\frac{1}{2}$ miles in a north and south direction and has a maximum width of 4 miles in its northern part. This mountainous island attains its greatest height of about 1,742 feet in Mt. Elias (Ayios Ilias), located in the northern part of the island and visible from a great distance. The much smaller island of Antipsara lies $1\frac{1}{4}$ miles westward of the southwestern part of Psara Island, and several small islets and shoals lie off several parts of Psara Island, none being more than 1 mile offshore.

The inhabitants are engaged principally in navigation and secondarily in the cultivation of the unfertile soil, from which are

raised small quantities of grain, grapes, and olives.

Radar target.—It has been reported that Psara Island is a good radar target with an echo range of 25 miles under normal conditions.

Caution.—The plan of Psara Island on H. O. Chart 4157 is unreliable, especially the eastern coast, the northern coast, and the topography.

Currents.—The current sets generally northward along the western side of Psara Island. As the current sets strongly onto the northern side of the island, give this side a wide berth.

9-74 **Paleo Kastro (Cape Trifilli)** ($38^{\circ}32' N., 25^{\circ}35' E., H. O. Chart 4157$), the southwestern extremity of Psara Island, is the southern termination of a narrow peninsula extending southward from the island for a distance of three-fourths of a mile. On this peninsula rises a hill, 253 feet high, surmounted by the ruins of an old fort, and on the low neck of this peninsula is the village of Palaia Psara. The church of Ayios Joannis, which stands at an elevation of 246 feet about 400 yards north-northwestward of Paleo Kastro, is a good landmark. Ayios Nikolaos church, which stands westward of the harbor entrance, is conspicuous.

A detached rocky shoal with a depth of 2 fathoms lies 100 yards southward of Paleo Kastro. Rocks above water and shallow depths extend 200 yards from the southern part of the western side of the peninsula of Paleo Kastro. Paleo Kastro should be given a berth of 300 yards.

9-75 **Choralolimani (Ormos Pasron)**, the bay entered between Paleo Kastro on the west and Cape Pounda on the east, is about 1,500 yards wide in its entrance and recedes about the same distance in a northerly direction. Within Cape Pounda rises a 394-foot hill, named Agios Georgios (Ayios Yeorios). The depths decrease gradually from 11 fathoms in the entrance to the 3-fathom curve located 150 yards off the beach along the northeastern side of the bay, and th

large cove forming the northern part of the bay has depths of less than 3 fathoms and a patch of rocks awash.

Two dangers lie in the western part of Choralolimani as follows: Trifilli Reef, a detached rocky patch with a least depth of 3 feet, located 400 yards north-northeastward of Paleo Kastro and 200 yards offshore; a detached rocky patch with a depth of $4\frac{1}{2}$ fathoms located 900 yards north-northeastward of Paleo Kastro and 400 yards offshore.

A cove for small craft is located on the eastern side of the village of Palaia Psara. The depths in the southern part of the cove are 13 feet, and considerably less in the northern part. Craft entering this cove must give the molehead forming the southern entrance point a berth of 30 yards.

A light is exhibited from a red iron column on a masonry base, the whole 20 feet high, on the head of the mole.

A foul area exists about $\frac{1}{2}$ mile south-southeastward from the above light.

9-76 Anchorage.—The anchorage in Choralolimani is considered secure during the summer, but is exposed to strong southerly winds in the winter. The holding ground is good.

A fair berth for large vessels is in 12 fathoms with the two southern points (east of the bay) of Psara Island in range, bearing 094° . Farther southward the bottom is uneven and rocky.

A good berth is in the middle of the bay in a depth of 7 fathoms, sand, at a distance of 800 yards east-southeastward of the light structure and 400 yards south-southwestward of the projecting point located about midway along the northern side of the bay.

9-77 Palaia Psara, the only settlement on Psara Island, has a population of about 600. The village has telegraphic and postal facilities. Coastal steamers call here.

9-78 Kokino Pulo (Cape Ayios Yeo-

ryios), the southeastern extremity of Psara Island, is located 1 mile eastward of Choralolimani; about midway along the intervening coast is the small cove of Limenaria. Kokino Pulo is fringed by shallow water, which extends as far as 300 yards off the eastern side of the point.

A light is exhibited from a white cylindrical tower, 39 feet high, on Kokino Pulo.

9-79 Eastern side of Psara Island.—From Kokino Pulo the eastern coast of Psara Island trends 4.3 miles northward to the point of Tritispela (Tragopidhima), the northeastern extremity of the island. Prasonisi (Karpis), a small rocky islet, lies close off the coast in a position $1\frac{1}{4}$ miles northward of Kokino Pulo, and from 400 to 800 yards southward of this islet the coast of Psara Island has rocks extending 200 yards offshore. Trakopethema (Kokkinopounda), located 2.6 miles northward of Kokino Pulo, is the most projecting point on the eastern coast of Psara Island, and 1.2 miles farther northward is the point of Volthoni (Prasonisi), having a small rocky islet 400 yards southward of it.

9-80 Northern side of Psara Island—Islet and dangers.—From the point of Tritispela the northern coast trends westward for 2 miles to the point of Markaki. This stretch of the coast has deep water near it.

A detached rocky patch with a depth of 1 fathom lies 900 yards westward of Markaki. Tritispela bearing 100° and open well northward of Markaki leads northward of this rock.

About two-thirds of a mile southwestward of Markaki is the cove Kanalo, and immediately westward of this cove is the small bay of Xera Chukanarliu (Kolimbitis), both open to the north. About 400 yards north-northwestward of the western entrance point of the cove of Kanalo is a detached rock with a depth of less than 6 feet. From

the western entrance point of the bay of Xera Chukanarlu the coast trends two-thirds of a mile west-southwestward to Turusi Pulo (Pounda tou Rousou), the northwestern extremity of Psara Island; located 500 yards off this stretch of the coast, from which it is separated by depths of 8 fathoms, is the small islet of Agios Georgios (Mastroyioryi). Mustapha (Moustafa), a group of rocks above and below water, extends 600 yards northwestward from Turusi Pulo.

9-81 Western side of Psara Island—Islets and dangers.—From Turusi Pulo the coast trends 1.8 miles southeastward to Karaman Vrakos, the northern entrance point of Nisi Harbor. Close to the shore in a position 1 mile southeastward of Turusi Pulo is the very small rocky islet of Khaviaropetra, with sunken rocks extending 200 yards westward from it. Located about 800 yards southwestward of this same islet and separated from it by depths of 42 fathoms lies a detached and steep-to rock with a Karaman Vrakos, close off which lies a small rocky islet, is the small bay of Ftelio, open to the south-southwest.

Nisi Harbor, about $1\frac{1}{4}$ miles wide in its entrance, indents the western coast of Psara Island to a distance of one-half of a mile in an easterly direction. Nearly in the middle of the entrance lies the small islet of Ayios Nikolaos, fringed by shallows that extend as far as 300 yards westward from it; on the western part of these shallows are several large rocks above water. The channel separating Ayios Nikolaos from the eastern shore of the bay has depths of less than 5 fathoms, and similar depths extend about 600 yards from the shore of the northern part of the bay. Thaskalo (Dhaskalio), another small islet, lies off the northern shore of the bay, to which it is connected by a reef. Small craft can obtain temporary anchorage in that part of the bay eastward of

depth of 2 fathoms. Just northward of Thaskalo; they use stern fasts.

Kuchopata (Koukhopata), a reef with a depth of $4\frac{1}{2}$ fathoms, lies in the approach to Nisi Harbor in a position about 1,300 yards westward of the islet of Ayios Nikolaos.

From the southern entrance point of Nisi Harbor the coast trends 1.2 miles south-southeastward to Paleo Kastro, the southwestern extremity of the island. Ayios Nikolaos, a detached reef with depths of 3 feet, lies as far as 600 yards off the northern part of this coast, from which it is separated by depths of 8 fathoms or more.

9-82 Antipsara (Andispara) ($38^{\circ}32' N.$, $25^{\circ}33' E.$, *H. O. Chart 4157*), an uninhabited island, lies $1\frac{1}{4}$ miles westward of the southwestern part of Psara Island. Vessels passing through the channel separating these two islands should favor the Antipsara side, especially large vessels that must avoid the reef of Kuchopata. Depths of less than 5 fathoms extend 200 yards from the island, but beyond this distance the depths increase suddenly. Rocks above and below water extend 200 yards northeastward from Xerathia tu Cava, the northeastern point of the island. Small islets or rocks lie close off the northwestern and southwestern points of the island, the distance being as great as 500 yards off the latter point. Amani, a small bay indenting the middle part of the eastern shore and having depths of 11 to 6 fathoms in its entrance, has a sunken rock lying 200 yards off its southern entrance point.

Katu Nisi (Katonisi), a small rocky islet, lies 400 yards off the eastern part of the southern coast of Antipsara. The channel between them is foul, and in this channel is located the much smaller islet of Moko (Medhiako). Temporary anchorage can be ob-

tained in a suitable depth westward of Katu Nisi.

9-83 NORTHERN SIDE OF KHIOS.—

The western half of this coast of the island is almost a straight line, and in places has shallow depths extending offshore for a short distance. Being uninhabited, it presents nothing of interest to navigation. The eastern half of the northern coast is indented by several small bays, and has several small islets or rocks lying close offshore.

9-84 Cape Anapomera ($38^{\circ}36' N.$, $26^{\circ}01' E.$, *H. O. Chart 4189*), located about midway along the northern coast, is the northernmost point of the island. About $2\frac{1}{2}$ miles southward of Cape Anapomera is the highest part of the island, Mount Ayios Ilias, the rugged and precipitous sides and bluff conical summit of which make easy the identification of the cape.

Gertis (Ghertis) Rock, a small rocky islet surrounded by deep water, lies 1 mile eastward of Cape Anapomera and 800 yards offshore.

A light is exhibited from a white tower on Gertis Rock.

A submarine exercise area is centered about 15 miles northward of Cape Anapomera.

Coast.—Cape Oura (Ora) is located $2\frac{1}{2}$ miles east-southeastward of Cape Anapomera. From Cape Oura the coast trends first $2\frac{1}{4}$ miles south-southeastward and then two-thirds of a mile eastward to the entrance of Port Marmaro.

9-85 Port Marmaro ($38^{\circ}33' N.$, $26^{\circ}07' E.$, *plan on H. O. Chart 4231*) is a small bay receding 1 mile in a southerly direction and having an average width of one-half of a mile. The depths decrease from 14 fathoms in the entrance to 3 fathoms at a distance of 400 yards off the head. The eastern shore is steep and barren, and a sandy beach forms the head of the bay. This bay is subject to strong squalls during southerly winds, and the holding ground of sand is poor, a vessel

having dragged with two anchors down during a southerly squall of force 8. No directions are necessary for entering the bay, but vessels should avoid the bay as a shelter except in case of necessity.

Margariti, a small rocky islet, lies close northward of the eastern entrance point of Port Marmaro. The southeastern point of the island is connected to the mainland by a narrow reef. Under the southwestern side of the islet there is anchorage in a depth of 7 fathoms for a small vessel with local knowledge.

A light is exhibited from a white iron column on a hut standing within the northwestern point of Margariti Islet.

9-86 Port Marmaro.—A small village is on the western side of the bay. There is a 400-foot quay to which small craft can secure by the stern, but depths off it are less than 5 feet. The village is the port for the inland community of Kardamili (Kardhamila), located southwestward of the bay. Telegraph and custom facilities are available. Small coastal steamers call.

9-87 Port Parapanda, located immediately eastward of Port Marmaro, from which it is separated by a massive peninsula, 984 feet high, is similar to that bay but somewhat narrower. The depths in the inner part are 14 to 10 fathoms, sand, and in places rocks extend offshore for a short distance. At the head is a sandy beach.

9-88 Coast.—Cape Vamvakas (Pampakas), located 1 mile east-northeastward of Margariti Islet, is the northern termination of a small and irregular peninsula forming the eastern side of the approach to Port Parapanda. The depths near this peninsula are great.

From Cape Vamvakas the rather irregular coast trends 1.6 miles southeastward to Cape Ayia Paraskevi (Vrulidia), a prominent headland forming the northeastern extremity of the island of Khios and the northwestern limit of Khios Strait. Glastri Rock,

a large rock above water, lies one-half of a mile east-southeastward of Cape Ayia Paraskevi and 700 yards offshore. The southern half of the channel separating the rock from the mainland is obstructed by a reef, and the rock is steep-to except for a reef extending a short distance westward from it.

Strovilo, a conspicuous, high, cone-shaped islet, lies close off Cape Ayia Paraskevi, from which it is separated by a channel available only for boats. A few rocks lie close to the base of this islet, but farther offshore the water is deep.

A light is exhibited from a white iron tower with a concrete base, the whole 13 feet high, on Strovilo Islet.

9-89 SOUTHEASTERN SIDE OF KHIOS.—Bay of Kalamoti (Kalamuti) ($38^{\circ}12' N.$, $26^{\circ}04' E.$, *H. O. Chart 4189*), called Ormos Kalamotis by the Greeks, is the southern of two bays indenting the southeastern coast of the island of Khios. Having a width of $5\frac{1}{2}$ miles in its entrance between Cape Mastikho to the southwest and Cape Gridhia (Gredia) to the northeast, this bay recedes for a maximum distance of $11\frac{1}{2}$ miles in a northwesterly direction. Depths of less than 5 fathoms extend 650 yards offshore in places along the northern shore, but the depths are great close to the western shore. Cape Kamari is a high headland at the head of the bay, and immediately northeastward of this headland are some dwellings on the sandy shore of a small inlet suitable only for very small craft. About 2 miles northward of the northern sandy shore of the bay is the village of Kalamoti (650 inhabitants). The ruined monastery on the conical hill behind Cape Kamari is conspicuous to vessels approaching Khios Strait from southward.

To vessels unable to proceed through Khios Strait against northerly winds, the Bay of Kalamoti affords temporary anchor-

age in depths of 16 to 14 fathoms, sand and weeds, off its northern shore.

Current.—See section 9-63.

9-90 Megalos Limnionas Bay, the northern of the two bays indenting the southeastern coast of the island of Khios, is 5 miles wide in its entrance between Cape Nenita to the southwest and Katomeri Point to the northeast, and recedes 1 mile in a westerly direction. Cape Nenita, the southern entrance point, can be recognized by its white steep cliffs. On the shore of the southern part of the bay is the settlement of Vokaryia, which serves as the port for the inland town of Nenita (1,600 inhabitants), where telegraphic and postal facilities are available. Near Katomeri Point is the settlement of Keramos.

When unable to pass through Khios Strait against northerly winds, vessels can anchor in the northern part of the bay in depths of 10 to 8 fathoms, sand and weeds, with the light structure on the islet of Paspargos bearing 090° .

The coastal description of the eastern side of the island of Khios is continued in section 9-103.

9-91 KHIOS STRAIT (*H. O. Chart 4189*)—**General remarks.**—Khios Strait, called Sakiz Boğazi by the Turks, separates the eastern coast of the island of Khios from the western coast of Turkey. Two small islets lie in the southern entrance to the strait, and several larger islands lie in the northern entrance. The fairways of the channels on either side of both of these two groups of islands are clear of dangers. The strait is clear of dangers at a distance of one-half of a mile offshore along the western (Khios) shore, but vessels must guard against several dangers along the eastern (Turkish) shore, namely Kaloyeri Reef, Kumuthi Shoals, the islands fronting Ildir

Körfezi, and some dangers along the eastern shore of Egri Liman Channel. In addition to the anchorages mentioned with the coastal description of its southern approach, Khios Strait affords several anchorages; among these are the bay eastward of Tekne Burun, Chesme Bay, Khios Harbor, Port Kolokithia, and the anchorages in the Oinoussai Islands; the details of these anchorages are given with the description of the respective area.

Currents.—During northerly winds the current sets southward through Khios Strait with a velocity from $1\frac{1}{2}$ to 2 knots, and during southerly winds the current sets northward with a maximum velocity of one-half of a knot.

9-92 Paspargos and Panayia.—These two small islets, about one-half of a mile apart in an east and west direction, lie near the middle of the southern entrance of Khios Strait. Sunken rocks lie close off both the southern and northern ends of Panayia, the eastern islet, and sunken rocks lie close off the northern end of Paspargos. The channel between these two islets has depths of 10 to 7 fathoms, but in its middle is a 4-fathom rocky patch. The fairway of the channel about 2 miles wide between the islet of Paspargos and Katomeri Point and the fairway of the channel about 1 mile wide between the islet of Panayia and Tekne Burun are both deep and clear of dangers.

A light is exhibited from an iron tower on the summit of the islet of Paspargos. A depth of $5\frac{1}{2}$ fathoms lies about $\frac{1}{2}$ mile west-southwestward of the light structure.

9-93 Oinousai (Spalmatori) Islands (*plan on H. O. Chart 4231*).—This group consisting of two large islands and a number of smaller islets extends $6\frac{1}{2}$ miles in a west-northwesterly and east-southeasterly direction and covers for the most part the northern entrance into Khios Strait. The group is separated from the island of Khios to the west by Spalmatori Channel and from

the western shore of Turkey to the east by the much wider Egri Liman Channel. Between the two large islands is a narrow and shallow channel.

Caution.—Caution must be used in approaching the coasts of the Oinousai Islands, as the charted soundings in this area are not in sufficient detail.

9-94 Oinoussa (Agnussi or Agnousa) Island, the largest and westernmost of the group, has a length of $4\frac{1}{2}$ miles, a maximum width of $2\frac{1}{2}$ miles, and a height of 555 feet in its western part. The population numbers about 2,500 inhabitants, most of whom reside in the town of the same name.

The northwestern part of Oinoussa Island is bold, and a reef extends 300 yards northward from its northwestern extremity. Another reef extends 300 yards northwestward from the northeastern extremity of the island, and the northern coast between these two reefs presents nothing of interest, the depths being considerable at a distance of 500 yards offshore. Having a length of 2 miles and forming the eastern shore of Spalmatori Channel, the southwestern coast of the island has depths of less than 5 fathoms extending 400 yards offshore in places.

The southern side of Oinoussa Island has a length of $2\frac{1}{2}$ miles and is indented by four small bays. Mandraki Islet is the outermost of three small islets located on a bank that extends one-half of a mile south-southeastward from the entrance point of the westernmost bay, which has depths of 5 to 3 fathoms. A $4\frac{1}{2}$ -fathom rocky patch lies 500 yards east-southeastward of Mandraki Islet. A light is shown on the southern end of the islet. The next bay eastward of Mandraki Islet has depths of 6 fathoms in its entrance and 4 to 2 fathoms in its inner part. On the eastern side of this bay rises Beacon Peak, a 478-foot summit with a beacon. Located 400 yards southward of the cliffy point that is the southern termination

of Beacon Peak is a rocky patch with depths of less than 6 feet. Between this cliffy point and the southeastern extremity of the island are the other two small bays, the western one with a depth of 6 fathoms in its entrance and the eastern one with a depth of 8 to 3 fathoms in its inner part.

9-95 Anchorages.—During southerly winds an anchorage suitable for a steamer is available eastward of the reef that extends northward from the northwestern extremity of Oinoussa Island. The bottom consists of coarse sand. A vessel should be ready to leave at the first indication of a change in the direction of the wind. Elsewhere along the northern coast the depths are too great for anchoring.

During strong northeasterly winds anchorage, in addition to that in Bogazi Bay, is available in several places along the southern coast of Oinoussa Island. It is said that small craft with local knowledge find shelter from both the south and the north within Mandraki Islet. A breakwater, about 300 feet long, extends southwestward from a position about 1/4 mile northward of the light on Mandraki Islet. A light is shown from the head of the breakwater.

9-96 Oinoussa, the town located on the western side of the second bay to the east of the southwestern extremity of Oinoussa Island, has a population approaching 2,500 inhabitants. The town has telegraphic, postal, and custom facilities. Coastal steamers make occasional calls.

9-97 Spalmatori Channel—Prasso Islets and danger.—This channel, one of the two northern entrances into Khios Strait, separates the southwestern coast of Oinoussa Island from the northeastern extremity of the island of Khios. Having a minimum width of 1,800 yards in the fairway, this channel is deep and clear of dangers except for the below-mentioned two islets and rock.

Prasso (Kio) Islets, two small, flat, rocky islets, lie close together in a position 1 mile southward of the northwestern extremity of Oinoussa Island and 1,400 yards off the southwestern coast of this same island.

They lie on a rocky shoal that extends as far as 200 yards northward and southward from them. A rock, awash, surrounded by shallows to a short distance lies 1,100 yards southeastward of the southern Prasso Islet and 600 yards off the coast of Oinoussa Island; because of this rock vessels passing through Spalmatori Channel should keep to the westward of the Prasso Islets.

A light is exhibited from a white iron tower with a concrete base on the summit of the northern Prasso Islet.

Strovilo Islet Light, marking the northwestern limit of the channel, is described in section 9-88.

9-98 Pasha Island (*southern end, 38°30' N., 26°18' E., plan on H. O. Chart 4231*), the second in size and the easternmost of the Oinousai Islands, extends 1¾ miles in a north-northwesterly and south-southeasterly direction, and has a maximum width of three-fourths of a mile in its southern half. The northernmost part of the island is separated from the northern part of the eastern coast of Oinoussa Island by a channel having a width of 300 yards and a depth of only 2 fathoms along its axis; this channel leads southward into Bogazi Bay. The small bays on the western side of Pasha Island and those on the eastern side of Oinoussa Island, together with the smaller islands fronting them, form Bogazi Bay and Pasha Bay.

A light is exhibited from a white circular masonry tower, adjacent to a dwelling with a red roof, 200 yards within a headland located 800 yards northward of Cape Tourkos (Turko), the southeastern extremity of Pasha Island.

Dangers.—A detached rocky patch of 4¾ fathoms lies one-half of a mile southeastward of the lighthouse, or 800 yards east-northeastward of Cape Tourkos.

A reef extends 200 yards eastward from the headland on which stands the lighthouse.

9-99 Bogazi Bay (Port Boghazi), the western of two bays between Oinoussa (Ag-nussi) Island and Pasha Island, is located between the southern part of the eastern coast of Oinoussa Island to the west and the smaller islands of Gavathi, 150 feet high, and Pondiko to the east. This part of the coast of Oinoussa Island recedes to form a small bay open to the south-southeast, and in the middle of the entrance to this bay lies Arkhondo Islet, having rocky shallows extending 100 yards southward from its southern end and 100 yards northward and 200 yards westward from its northern end. The depths northward of the islet are 10 to 6 fathoms, but depths of less than 3 fathoms extend 300 yards southward from the shore of the large recess farther to the northward.

Gavathi Island and Pondiko Island extend for a distance of 1 mile south-southwestward of the northern part of the western coast of Pasha Island. Pondiko Island, the inner one, separated from the coast of Pasha Island by a narrow and shallow channel, has rocky shallows extending 200 yards southward from its southern extremity and the same distance southwestward from its southwestern extremity. Having a large rock above water on them, the shallows extending southwestward from Pondiko Island leave only a narrow channel with a depth of 4 fathoms between Pondiko Island and Gavathi Island, as the latter island also has rocky shallows extending a short distance northward from its northern extremity.

9-100 This section has been deleted.

9-101 Pasha Bay is located between Gavathi Island and Pondiko Island to the west and Vatos (Vaton) Island and the southern part of the western coast of Pasha Island to the east. Vatos Island, separated from the southern coast of Pasha Island by a channel having a minimum width of about 100 yards in its eastern part, where the depth along its axis is only 4 fathoms, is fringed by a reef that extends nearly 200 yards offshore in places along the southern coast. This same reef extends 300 yards westward from the western end of the island, and close within the extremity of this reef is a small rocky islet, having 200 yards northward of it a small detached rocky patch of 2 fathoms. Another reef with a rock above water close within its extremity extends over 300 yards westward from the southwestern point of Pasha Island. The danger extending southward from Pondiko Island is described with Bogazi Bay, and no dangers exist along the eastern coast of Gavathi Island.

Pasha Bay, open to the south, is inferior as an anchorage to Bogazi Bay. The bottom is irregular and in places composed of rock.

9-102 Egri Liman Channel ($38^{\circ}31' N.$, $26^{\circ}21' E.$, *H. O. Chart 4189*), the eastern of the two northern entrances to Khios Strait, is about $3\frac{1}{2}$ miles wide between Pasha Island on the west and the Peninsula of Kara Burnu of the Turkish mainland on the east. This channel has considerable depths and is free from dangers except for the $4\frac{3}{4}$ -fathom shoal lying one-half of a mile southeastward of the lighthouse on Pasha Island and other dangers lying close off the eastern shore of the channel in positions northward and southward of the port of Egri Liman (sec. 9-121).

9-103 WESTERN SIDE OF KHIOS STRAIT—Coast (*H. O. Chart 4189*).—Between Katomeri Point, the northeastern limit of Megalos Limnionas Bay, and Cape Ayia Eleni, 1 mile northward, the eastern coast of the island of Khios is indented by a shallow bay, inland of which is the town of Evfimiana (Thymiana), with about 1,750 inhabitants. The water in this bay is sometimes so clear that the white sandy bottom is visible.

Cape Ayia Eleni is low at its extremity but rises gradually to a hill, on which, it is reported, stands a white building with a red roof. Vessels passing this cape should give a berth of more than one-half of a mile, as depths of less than 5 fathoms extend some distance seaward from this cape, as well as from the shallow bay southward of it.

A dangerous wreck lies about $1\frac{1}{4}$ miles northward of Cape Ayia Eleni.

From Cape Ayia Eleni the coast for the most part a sandy beach trends $2\frac{1}{2}$ miles north-northwestward to Khios Harbor. Depths of less than 5 fathoms extend as far as 900 yards offshore along this part of the coast.

9-104 Khios Harbor ($38^{\circ}22' N.$, $26^{\circ}09' E.$, *plan on H. O. Chart 4189*), the principal port for the island, is located about midway along the eastern coast of Khios Island. Sheltered from the east by two moles, this small rectangle-shaped harbor has a length of nearly 800 yards in a north-northwesterly and south-southeasterly direction and a width of about 400 yards. The southern mole trends about 350 yards in a north-northwesterly direction; the northern mole trends first about 200 yards in a southeasterly direction to a ruined fort and then 150 yards in an east-southeasterly direction. Facing southeastward, the entrance between the heads of these moles is 150 yards wide but the channel width with a least depth of 24 feet (1960) is only 50 yards wide. This harbor quayed on its three sides has depths of 20 to 29 feet in the greater part of its

northern half, a small area off the southwestern side of the northern mole being foul; the depths at a short distance southward of the entrance become 2 fathoms and less.

In 1960 it was reported that the controlling depth in the harbor was 20 feet.

Lights.—Two lights, vertically disposed, are shown from the ruined fort on the northern mole.

A light is shown from the head of the northern mole.

A light is shown from the head of the southern mole.

It was reported (1957) that the above lights are difficult to distinguish from the town lights.

Landmarks.—The following landmarks at Khios are conspicuous:

(a) A gray tower close northward of the harbor.

(b) The cathedral with twin towers westward of the harbor.

(c) The dome of the Evangelistria church southward of the harbor, and farther southward a building with a red roof and chimney.

(d) The ruined fort on the northern mole.

9-105 Anchorage is available off Khios Harbor from a position one-half of a mile southward of the entrance to a position 2 miles northward of the entrance. Caution is necessary in selecting a berth, as the depths increase rather rapidly offshore.

The best anchorage for a large vessel is in depths of 12 to 18 fathoms, mud, about three-fourths of a mile northeastward of the citadel located immediately northward of the harbor. A good berth for smaller vessels is in a depth of 8 to 5 fathoms in a position 800 yards northward of the head of the northern mole. Anchorage is available inside the harbor for vessels whose draft does not exceed 21 feet.

Selecting a berth near the harbor should be taken into consideration during the au-

tumn months, when strong northeasterly winds blow and sometimes raise a heavy sea, making boat traffic difficult. The bottom near the entrance is soft mud, and here the anchors would drag.

Prohibited anchorage.—Several submarine telegraph cables are landed 1 mile southward of the entrance to Khios Harbor, and anchorage is prohibited in this area.

9-106 Pilotage is not available; however, a local merchant marine master can perform such duties, and his services are recommended because of the ports narrow entrance. If requested, he boards vessels about $\frac{3}{4}$ mile off the entrance. The merchant marine master will take vessels up to 2,000 tons into the harbor at night.

Directions.—Vessels able to enter the harbor must pass 50 to 60 yards off the southern molehead, as depths of $2\frac{3}{4}$ fathoms extend a short distance southward from the northern molehead and shallow depths extend also a short distance from that part of the northern mole where stands the ruined fort. A vessel coming from the north, as well as one coming from the south, must exercise caution in the entrance, because the wind and the swell will swerve her stern to the south as soon as her bow is covered by the northern molehead.

Vessels over 350 feet in length and over 21-foot draft should not enter the harbor. In 1953 there were no tugs available to assist vessels in maneuvering.

9-107 KHIOS ($38^{\circ}22' N., 26^{\circ}08' E.$, *plan on H. O. Chart 4189*). the capital of the island of Khios, had a population of about 24,000 in 1951. The more important section, including the ancient citadel, is built on all three sides of the harbor, and the suburbs extend both northward and southward from the harbor.

WHARVES.—The northern, western, and the western side of the northern mole, and southern sides of the harbor are quayed, but only in the northwestern part of the harbor are the charted depths of $3\frac{3}{4}$ to $3\frac{1}{4}$ fathoms alongside the quay sufficient for small vessels to moor stern-to.

Outside of the harbor in a position close north of the citadel is a jetty with a length of about 80 feet. Farther north are two small points with windmills on them. The southern point has on its southern side a quay with a length of 115 feet and on its northern side a jetty with a length of 85 feet; the northern point has on its southern side a quay with a length of about 65 feet. All of these jetties and quays have shallow depths.

The North Quay, about 825 feet long, has about 460 feet of usable berthing space along the extreme western portion, with depths of about 22 feet alongside. The West Quay is about 1,700 feet long, and has depths of 20 feet along 920 feet of the extreme northern portion; the remainder has depths of 8 to 13 feet. Southwest Quay is about 720 feet long with depths of 8 feet alongside.

There are numerous Diesel-powered caiques available for unloading ships in the harbor.

Supplies.—Provisions, diesel oil, and water are available in small quantities. Water is piped to West Quay, and is also available by barge.

Repairs.—There is a small machine shop where repairs of a minor nature can be made. Two marine railways can accommodate vessels up to 100 tons displacement and not over 65 feet in length.

Communications.—The city is connected to the general telegraph system. Greek steamers make regular calls. Good roads lead inland.

Radio.—The radio station is open to public correspondence. Radio telephone service is available on frequency 3782 kc., call sign SVX Khios Radio, from 0800 to 1500 and from 1700 to 2400 local time.

Hospital.—The city has some medical facilities, which are not always available to seamen.

Deratization.—Deratization certificates are issued.

9-108 Coast.—From Khios Harbor the eastern coast of the island trends $5\frac{1}{2}$ miles northward to Cape Tholos (Pali). The first 4 miles of this coast is fringed by a narrow coastal bank, the depths 600 yards offshore being considerable; the last $1\frac{1}{2}$ miles is steep-to and indented by several small coves. About midway along this entire coast and at a short distance inland is the town of Vromadhes (6,750 inhabitants).

Between Cape Tholos and Cape Ayios Isidhoros (Sidero), 1 mile north-northwestward, are two inlets hemmed in by steep

hills and suitable only for small vessels. Ayios Stefanos (St. Stephano), a small, low, rocky islet with foul ground close off its eastern side, lies in the approach to these inlets in a position 400 yards northward of Cape Tholos, from which it is separated by a deep channel. The channel on the western side of this islet is also deep, and a rock, above water, lies close off the western shore of this channel. At the head of the western inlet, named Pandoukios, are several houses and mooring facilities for small craft.

9-109 Port Kolokithia ($38^{\circ}29' N.$, $26^{\circ}09' E.$, *plan on H. O. Chart 4231*), about 1 mile wide in its entrance between Cape Ayios Isidhoros on the south and Cape Palaiopir-

gos on the north, recedes 1 mile in a westerly direction and has a width of three-fourths of a mile. The depths in the greater part of the bay are too great for anchoring. A detached 6-fathom patch lies in the entrance in a position 700 yards northward of Cape Ayios Isidhoros; a shoal with a depth of 3 feet extends 200 yards from the southern shore close westward of this same cape. A narrow and steep-to coastal bank fringes the inner part of the northern shore; at the western end of this bank is a rock above water.

A small green islet is separated by a boat channel from the land at the northwestern recess of Port Kolokithia. The inlet entered eastward of this islet is nearly 400 yards wide in its entrance and has depths of 15 to 5 fathoms in its inner part, where a small vessel could anchor with her stern secured to the shore; at this locality is a 150-foot jetty suitable only for small craft. The inlet westward of the islet is shallow and muddy; a fresh-water stream discharges into this inlet.

The usual anchorage in Port Kolokithia is in its southwestern recess, where the depths are 15 to 6 fathoms, sand. The village of Kolokithia, built along the northwestern shore of this recess, has several small piers, where small vessels can moor stern-on, and a quay with a length of about 210 feet. Inland of this recess is the village of Langadhi.

A light is exhibited on Point Landako.

9-110 Coast.—From Port Kolokithia the eastern coast of the island of Khios trends $3\frac{1}{2}$ miles northward to Cape Ayia Paraskevi (Vrulidia), the northeastern extremity of the island, and forms the western shore of Spalmatori Channel (sec. 9-97). A great part of this coast is bold and steep-to. Cape Kaminaki, located 1 mile southward of Cape Ayia Paraskevi, has rocks extending 300 yards eastward from it, and rocks extend also a short distance from that part of the

coast trending three-fourths of a mile southward from Cape Kaminaki.

9-111 EASTERN SIDE OF KHIOS STRAIT—Coast (*H. O. Chart 4189*).—Between Tekne Burun, located $1\frac{1}{2}$ miles northward of Ak Burun (sec. 9-61), and Kızıl Burun (Kezil Point), 3 miles northeastward of Tekne Burun, the coast, consisting of white chalky cliffs, recedes southeastward to form a bay. A small islet fringed by shoal depths lies in the bay in a position three-fourths of a mile eastward of Tekne Burun and within the 5-fathom curve that skirts the southern shore of the bay at a distance of one-half of a mile offshore.

Anchorage.—During strong southerly winds anchorage can be obtained northeastward of Tekne Burun in a depth of 10 to 12 fathoms, coarse sand, good holding ground. Vessels must be prepared to leave if the wind shifts to the north.

9-112 Chesme Bay (Çeşme Körfezi) ($38^{\circ}20' N.$, $26^{\circ}18' E.$, *plan on H. O. Chart 4231*) recedes about 1 mile in an easterly direction from Kızıl Burun, its southern entrance point. Having a reddish color, Kızıl Burun is steep-to on its western side, but has shoal water extending a short distance northward from it and 200 yards from its eastern side. Kara Dag (Kara Dag) Point, a wide headland projecting from the southern shore, separates Aiasmata Bay (Içme Içi) on the west from Chesme Harbor on the east. Submarine cables are landed on the southeastern shore of Aiasmata Bay, and on this same shore stands a conspicuous arch. A conspicuous white building is located on the southwestern side of the harbor.

A light is exhibited from a wooden mast, 13 feet high, located about 60 yards within the extremity of Kızıl Burun.

9-113 Kaloyeri Reef (Kolona Banki) lies

in the approach to Chesme Bay in a position 0.6 to 1 mile west-northwestward of Kızıl Burun. On this reef are rocks with depths of less than 6 feet and in other places the depths are from 2 to 4 fathoms.

A pole beacon, 10 feet in height, marks Kaloyeri Reef.

Cape Mastikho, the southern extremity of Khios Island, bearing 229° and open south-eastward of Cape Gridhia, as well as open northwestward of Tekne Burun, leads south-eastward of Kaloyeri Reef. There will be no doubt about clearing the reef if Kızıl Burun is rounded at a distance of 500 yards. When coming from the northwestward at night, keep the light on Kızıl Burun bearing more than 132° to pass northeastward of the reef.

Anchorage.—Vessels can anchor 600 yards eastward of Kızıl Burun in a depth of 10 fathoms, good holding ground. Nearer the town and northward of Kara Dagħ Point the holding ground is bad, as shown on the chart, but trading vessels anchor northward of this rocky holding ground. Large vessels can anchor 600 yards northeastward of Kızıl Burun in a depth of 12 fathoms, or farther northwestward of this berth in a depth of 15 to 16 fathoms, mud.

9-114 Chesme (Çeşme), located on the eastern side of the head of Chesme Bay, is built on a slope crowned by an old ruined castle. A stone quay, with depths of 3 to 4 feet alongside, fronts the castle. The town has several mosques, a Greek church, and a customhouse. Telegraphic communications is available. A large quantity of grapes are raised in the vicinity.

9-115 Coast (*H. O. Chart 4189*).—From the town of Chesme the coast, decreasing in height and clear of dangers, trends 3 miles north-northwestward to Üç Burunlar (Kumuthi Point) (38°23' N., 26°18' E.), the southwestern limit of Ildır Körfezi. Between Üç Burunlar, low and fringed with rocks, and Top Burnu (Paramesa Point), 1.3 miles eastward, an inlet with depths of 18 to 5 fathoms recedes southward for a distance of 1¼ miles. Close northward of Üç

Burunlar is a narrow passage leading into Ildır Körfezi, but this passage is available only for small vessels with local knowledge.

9-116 Kumuthi Shoals, a group of rocky patches detached from each other, extend as far as 1½ miles northward of Üç Burunlar and occupy an area having a width of 1½ miles in an east and west direction. Some of the patches are nearly awash, others have depths of less than 6 feet, and in places the depths are 2 to 3 fathoms or considerably more. Lying within the western edge of these shoals, about three-fourths of a mile northwestward of Üç Burunlar, is Toprak Ada (Kumuthi Islet), having an oval form and composed of red earth and loose stones.

Kumuthi Shoals are the chief danger for vessels navigating Khios Strait, as the western and northern sides are so steep-to and the depths outside of them are too even and deep to make soundings of any value, and therefore when passing them a vessel should check its position by bearings. The line between the light on Paspargos Islet and that on Pasha Island passes 1 mile westward of the shoals; to insure safety when in the vicinity of the shoals, keep Paspargos Islet Light bearing less than 200°, or Pasha Island Light bearing more than 020°. Kızıl Burun Light bearing not more than 164° also leads westward of the shoals; the southern extremity of Uzun Adalar in range 082° with the southern extremity of Gönnye Adası leads northward of them.

9-117 Islands fronting Ildır Körfezi.—Kara Ada (Goni Island) is the largest of a group of islands lying in the entrance between Kumuthi Shoals on the southwest and Teke Burnu on the northeast. This group, occupying an area of 4 miles in an east and west direction and about half this distance in a north and south direction, and the Kumuthi Shoals may be considered part of

the eastern limit of Khios Strait. Both southward and northeastward of the group is a passage leading into Ildır Körfezi.

Uzun Adalar (Makro Islets), the two western islets of the above-mentioned group, lie close together and are separated by depths of 28 to 9 fathoms from Kumuthi Shoals to the southwestward. The passage between Uzun Adalar and Kara Ada is deep but narrowed by a large rock, above water, lying on the Kara Ada side of the fairway. A patch of rocks above water lies about one-half of a mile eastward of the southern Uzun Adalar.

Gönye Adası (Platia Islet) and Toprak Ada (Meso Islet), the two eastern islets of the above-mentioned group, are joined to each other by a reef. The deep passage between Toprak Ada and Kara Ada has a width of 600 yards, and in its southern entrance, toward Toprak Ada, lies a large rock above water. The deep passage between Gönye Adası and Teke Burnu to the north-northeast is 1,200 yards wide and clear of dangers.

9-118 Ildır Körfezi (Eritra Bay), indenting the mainland on the eastern side of Khios Strait, widens out considerably within its entrance. Besides having several promontories, the irregular shore is indented by several smaller bays. The chart is the best guide for navigating in Ildır Körfezi.

The northeastern part of Ildır Körfezi is sheltered from the west by the promontory of Kara Dağ, 1,044 feet high, projecting nearly 3 miles southwestward from the Peninsula of Kara Burnu and terminating in Teke Burnu (Mavro Vuni Points). Gerence Körfezi, the bay eastward of the promontory, has anchoring depths off its head, and similar depths are found off the shore southeastward of this bay.

Trago Rocks, above water and surround-

ed by others under water, lie three-fourths of a mile eastward of Teke Burnu.

Another promontory projects northwestward from the eastern shore of Ildır Körfezi for a distance of 3 miles and terminates in Gönçe Burnu (Keras Point) (Kiraz Burnu). The area southward of this promontory is encumbered with rocks, shoals and islets. On the shore within these islets are the ruins of the town of Ildır (Eritra), sacked in 1922 and now practically uninhabited.

A rocky shoal with a few rocks above water extends 500 yards northward from Kalaytaş Burun, the northern point of a promontory located $4\frac{1}{2}$ miles southwestward of the ruins of Ildır. On the southern shore of Ilıcak Körfezi, the bay westward of the peninsula, is a conspicuous hotel and some houses. Small vessels can obtain good anchorage in this bay, the bottom being sand and weeds with some rocky ground.

Port Paraskevi (Kiosti), the small cove located 3 miles west-northwestward of Kalaytaş Burun, is a small all-weather anchorage for caiques up to 40 feet. A small repair shop for caiques is located here.

9-119 THE PENINSULA OF KARA BURNU is united to the mainland of Turkey by an isthmus having a width of 3 miles between Ildır Körfezi on the west and Göl-bache Körfezi on the east. From this isthmus the peninsula trends $16\frac{1}{2}$ miles north-northwestward and attains its greatest height in Ak Dağ (Boz Dagh), 3,906 feet high. The high and bold coast has deep water at a short distance offshore nearly everywhere except for a short stretch on the western side of the peninsula.

9-120 Rakos Islets ($38^{\circ}31' N.$, $26^{\circ}23' E.$, H. O. Chart 4189), two in number and small in size, lie $4\frac{1}{2}$ miles northward of Teke Burnu and 600 yards off the eastern

shore of Egri Liman Channel (sec. 9-102). A 6-fathom patch lies 400 yards southwestward, and a 2-fathom patch lies 500 yards southeastward, of the Rakos Islets.

9-121 Egri (Igri) Liman ($38^{\circ}32' N.$, $26^{\circ}24' E.$, *plan on H. O. Chart 4225*), entered $5\frac{3}{4}$ miles northward of Teke Burnu, or 4 miles northeastward of Pasha Island Light, is a small narrow port on the western side of the Peninsula of Kara Burnu, where local vessels frequently seek shelter. The western side of the port is a narrow, irregular, cliffy peninsula paralleling the mainland for a distance of $1\frac{1}{4}$ miles. Open to the north, the port has a width of 400 yards in the entrance, gradually decreasing to 200 yards halfway inside the port. The depths decrease gradually from 12 fathoms in the entrance to 5 fathoms halfway inside the port: thence to the head is a mud flat with depths of 6 feet or less.

Egri Liman is open to vessels, but they must follow the below-mentioned directions. Failure to comply with these directions will involve prosecution.

Shoal.—A $2\frac{1}{2}$ -fathom shoal lies 250 yards northwestward of the northern extremity of the small peninsula, which forms the western entrance point of the port.

Beacon.—A white beacon is charted on a hill, 108 feet high, located close within the western entrance point of Egri Liman. It was reported (1928) that this beacon no longer exists.

Utch Islets (Üç Adalar), a group of three islets and several rocks above water, lie on a bank extending 600 yards westward from the middle of the western side of the peninsula enclosing Egri Liman.

Directions.—Vessels proceeding to Egri Liman from the northward must approach from a position in lat. $38^{\circ}36' N.$, long. $26^{\circ}19' E.$; when coming from the south-

ward, vessels must approach the port from a position in lat. $38^{\circ}29' N.$, long. $26^{\circ}19' E.$

9-122 Garen Rocks ($38^{\circ}34' N.$, $26^{\circ}22' E.$, *H. O. Chart 4189*), located $1\frac{3}{4}$ miles northward of the entrance to Egri Liman, extend 500 yards westward from the southern entrance point of a small indentation known as Deniz Giren. The rocks are above water, but close off their extremity is a sunken rock, beyond which is a depth of 3 fathoms. A sunken rock lies 600 yards west-southwestward, and a similar rock lies 600 yards southwestward, of the southern entrance point of Deniz Giren. About one-half of a mile northward of Garen Rocks and 500 yards offshore is a third sunken rock. All these rocks are steep-to.

The peak on the Peninsula of Kara Dağ bearing 151° and open westward of the peninsula that forms Egri Liman leads westward of these dangers.

9-123 Kara Burnu, located 6 miles northward of Garen Rocks, is the northwestern extremity of the Peninsula of Kara Burnu. It can be recognized by its dark steep cliffs, and on a hill $1\frac{1}{2}$ miles southeastward stand three windmills. Not far southwestward of the cape and close inshore is a large rock, or islet.

A light is exhibited from a white cylindrical tower, 44 feet high, standing on Kara Burnu. A keeper's dwelling is attached to the tower.

9-124 Kömür Burnu (Kumar Point), located $2\frac{1}{2}$ miles east-northeastward of Kara Burnu, is the western termination of a cliff having a length of 1,200 yards and forming the northern extremity of the Peninsula of Kara Burnu. Kumur Baba is the name of the eastern extremity of this cliff.

Between Kumur Baba and Kanlı Kaya Burnu (Kinlu Point), $2\frac{1}{4}$ miles eastward, the coast recedes slightly to the south to form a bay.

9-125 IZMIR KÖRFEZİ (GULF OF SMYRNA) (*H. O. Chart 4189*).—The entrance of İzmir Körfezi is considered to be between Kanlı Kaya Burnu on the west and Arslan Burnu on the east. From these entrance points, 18 miles apart, the gulf trends first 24 miles in a southeasterly direction and then 12 miles in an easterly direction to the head, where is located the city of İzmir. The width varies but narrows as the inner part is approached, where the channel

becomes irregular and contracted. The depths decrease gradually from the entrance, where they are 45 to 43 fathoms, toward the head of the gulf. Being opposite in character, the western shore, the base of mountainous land, is high and steep, while a large part of the eastern shore is low and broken, the lagoons within it being backed by a plain.

9-126 This section has been deleted.

9-127 WESTERN AND SOUTHERN SIDES OF İZMİR KÖRFEZİ—*Kanlı Kaya Burnu* (Kinlu Point) ($38^{\circ}40' N.$, $26^{\circ}29' E.$, *H. O. Chart 4189*), the western entrance point of İzmir Körfezi, is a dark bold bluff with deep water close to it. About $1\frac{1}{2}$ miles south-southeastward of the bluff is the remarkable Peak of Mimas, having the shape of a sugar loaf and a height of 1,724 feet. It rises from the northern part of the chain of mountains extending north and south on the Peninsula of Kara Burnu. Being visible from all seaward directions, this peak is a good landmark.

9-128 Coast.—Between *Kanlı Kaya Burnu* and *Tuzla Burun*, 1 mile southeastward, the shore is clifty and steep-to. *Tuzla Burun*, however, has rocks extending a short distance from it, and southeastward of the point the coast, forming the shore of Port Saip, has shoal depths extending offshore for a distance of 200 yards.

9-129 Port Saip (Sahib) ($38^{\circ}39' N.$, $26^{\circ}32' E.$, *plan on H. O. Chart 4189*), located 1 mile southeastward of *Tuzla Burun*, is formed by *Fener Burun* on the south and *Büyük Saip* on the north, and has depths of 20 to 10 fathoms. Open to the northeast and seldom frequented, the port is suitable only for small vessels. It is subject to sudden and strong gusts of wind off the land, but vessels find shelter here during southeasterly winds, which blow at times with much force out of İzmir Körfezi. At the head of the port is a small village with a pier.

Büyük Saip (*Buyukada*), 168 feet high, fronting the port, slopes gradually toward its northeastern extremity, which is bold and steep-to. With the exception of the northern half of northwestern coast the islet is bordered by a narrow shallow bank, and rocks extend 150 yards from the southwestern end, where there is a white cliff.

A light is shown from the northeastern extremity of *Buyuk Saip*.

A rocky shoal with a least depth of 1 fathom at its central part, lies 400 yards northwestward of the southwestern end of the islet; a narrow channel with depths of 10 to 6 fathoms separates this shoal from the northwestern coast of the islet, while a channel with a width of 400 yards and depths of 9 to 7 fathoms in midchannel separates the shoal from the bank fringing the shore of the mainland to the west.

Fener Burun, located 650 yards southward of *Büyük Saip*, is a point projecting northward from the mainland, and on a hill, 299 feet high, dominating the point are some windmills. *Küçük Saip*, an islet lying off the northeastern side of the point, is bordered by a narrow shoal and separated from the mainland by a narrow channel with a depth of $4\frac{1}{2}$ fathoms.

9-130 Directions.—Port Saip is open to vessels, but they must observe the following directions, and failure to comply with them will involve prosecution:

Vessels bound to Port Saip from the northward must approach from a position in lat. $38^{\circ}42' N.$, long. $26^{\circ}31' E.$, and those coming from the southward must first reach a position in lat. $38^{\circ}35' N.$, $26^{\circ}44' E.$, after which a direct course can be steered for the port. According to which way bound, vessels leaving the port must follow the same track as in approaching.

When entering the port through the entrance southward of the islet of *Büyük Saip*, keep 400 yards off the shore and remain in depths of not less than 6 fathoms until inside the port. There are no dangers in this entrance.

9-131 Coast.—From Port Saip the shore trends in a general south-southeasterly direction for nearly 13 miles to *Kum Burnu* (Cape Aspro), the northwestern entrance point of *Gülbache Körfezi*. *Ak Burun*, 4 miles south-southeastward of the port, has

close off it a sunken rock. The last 4 miles of this shore between Ardiç Burnu and Kum Burnu is fringed by shoal depths, which extend as far as 600 yards from Kum Burnu.

9-132 Gülbache Körfezi (Gulf of Gul Baghche), the bay bounded on the west by the southern half of the western shore of İzmir Körfezi and on the east by a peninsula extending northward from the southern side of İzmir Körfezi, recedes $9\frac{1}{2}$ miles in a southerly direction and decreases in width from $3\frac{1}{2}$ miles in the entrance to $1\frac{3}{4}$ miles at the head. In the middle of the bay in a position about $1\frac{1}{2}$ miles off the head lies Hermo Islet (Yılan Adası), connected to the eastern shore by a 2-fathom flat, which borders the shore all round the head of the bay from Kalabak, a point on the eastern shore of the bay in a position 1 mile northward of the islet. The depths in the entrance to the bay are 16 fathoms, decreasing gradually to 6 and 5 fathoms in a position one-half of a mile northwestward of Hermo Islet; and the depths between the southern side of the islet and projecting parts of the flat are 5 to 3 fathoms. The eastern shore of the bay should be avoided, as it is bordered by shoal depths, and a 2-fathom patch lies $1\frac{1}{2}$ miles northward of the point of Kalabak and one-half of a mile offshore.

Anchorage.—During northerly winds vessels have anchored under Kum Burnu in depths of 15 to 10 fathoms. When steering for this anchorage, give the eastern point of Kum Burnu a wide berth. Vessels in this vicinity should be prepared for heavy squalls, which occasionally descend from the high land.

9-133 Uzun Ada (Chustan Island) (*northern extremity, $38^{\circ}33'$ N., $26^{\circ}43'$ E., H. O. Chart 4189*), located in the middle of İzmir Körfezi, is separated from the western shore of this gulf by Mordogan Gecidi, a passage having a width of $2\frac{1}{2}$ miles and

depths of 20 to 5 fathoms. This passage, the southern continuation of which is Gülbache Körfezi, has shoal depths of 5 fathoms which extend for a distance of $1\frac{1}{2}$ miles from the western shore of its southern end. The shore on either side should not be approached too closely. Being the largest of the islands in the gulf, Uzun Ada is $5\frac{1}{4}$ miles long in a north and south direction, has a maximum width of $2\frac{1}{2}$ miles, and attains in its middle part a height of 627 feet. The coast of the island is slightly irregular and bordered by a narrow shoal bank.

9-134 Isareis Burun (Chustan Point), the northern extremity of Uzun Ada, is a narrow tongue, moderately high and steep-to. About 1 mile southward of the point and close off the western coast of the island, from which it is separated by a depth of 4 fathoms, is a small islet.

A light is exhibited from a white iron framework tower standing on the coast about 1 mile southeastward of Isareis Burun.

A radio tower marked by a red obstruction light stands about $2\frac{1}{4}$ miles southeastward of Isareis Burun.

9-135 Bays and dangers.—A small bay indents the western coast of Uzun Ada in a position about 2 miles southward of Isareis Burun. In this bay is a small jetty with a depth of 9 feet alongside, and vessels drawing 20 feet can anchor 400 yards off the head of the jetty.

The southwestern side of Uzun Ada is indented by a bay, formerly known as English Harbor. It has depths of 17 to 8 fathoms, but in the eastern half are rocky patches with depths of 4 to 5 fathoms over them. Extending 700 yards southwestward from Şat Burun, the northwestern entrance point of the bay, is a shoal with an islet on it and rocks awash at its extremity. Another shoal with depths of $3\frac{1}{2}$ to 5 fathoms extends 700 yards southward from the southern end of Uzun Ada.

A radio tower marked by a red obstruction light stands about $1\frac{3}{4}$ miles east by southward of Şat Burun.

A shoal of hard sand and stones lies in the middle of the passage between the southern end of Uzun Ada and the shore of the northern end of a promontory at 1.4 miles to the south of the island. This shoal has a length of 400 yards and depths of $2\frac{1}{4}$ fathoms. A 5-fathom rocky patch lies three-fourths of a mile northwestward of the shoal.

The southern Yılanlı Ada in range 122° with the southern point of Hekim Ada leads northeastward of the shoal and the rocky patch, while the extremity of the small peninsula northwestward of Urla Road in range 154° with the point 2 miles north-northwestward of the small peninsula leads eastward of the shoal. The northeastern extremities of Pınarlı and İncirli Ada in range 126° lead southwestward of the shoal and the rocky patch.

The middle part of the eastern coast of Uzun Ada is indented by a bay with depths of 17 to 5 fathoms. Kılınç Burun (Long Point), the southern entrance point, is a gray cliffy projection dominated by a peaked hill of similar color. Kılınç Burun Kayaları (Tribune Rock), lying in the entrance in a position 1,100 yards northward of Kılınç Burun, has a depth of 2 fathoms over it and surrounding depths of 8 to 5 fathoms. The northern point of Yassica Ada bearing 157° and open eastward of Hekim Ada leads eastward of the rock, but a better mark is to keep the entire island of Yassica open. At the northern part of the bay is a small jetty with a depth of 12 feet alongside, and vessels drawing 20 feet can anchor 400 yards off the head of the jetty.

9-136 Hekim Ada (Kilsali Island), located 1 mile southeastward of Uzun Ada, from which it is separated by depths of 26 to 16 fathoms, attains a height of 370 feet at its southern end. The coast is bordered by shoal depths; as the 5-fathom curve is 500 yards offshore in places on the western

and southeastern sides, these sides should be given a wide berth by vessels having a deep draft.

9-137 Çiçek Adaları (Marathussae Islands), a group of islands and islets, each surrounded by shallows but having deep passages, although narrow in some cases, between them, lies from 1 mile to $2\frac{1}{2}$ miles southward of Hekim Ada and front Urla Road. Yılanlı Ada, two small low islets, from the northeastern part of the group. Yassica Ada (Yilanejah), the large island southward of these two small islets, is separated from them by a passage having a depth of 10 fathoms in midchannel. Pınarlı (Penarlı Island), 163 feet high, lies 900 yards south-southwestward of Yassica Ada, from which it is separated by a passage having a depth of 6 fathoms in midchannel. Akca Ada (Akjadah Island), 64 feet high, lies 900 yards westward of the northern end of Yassica Ada, from which it is separated by depths of 20 fathoms in midchannel.

İncirli Ada (Yasajah Island), 89 feet high, lies one-half of a mile southwestward of Akca Ada, from which it is separated by a passage having depths of 19 fathoms in midchannel. On the mainland 1,600 yards southwestward of this island is a small peninsula, and this peninsula and the southern extremity of the island are connected by a bank with depths of 10 fathoms or less. On this bank is a 3-fathom shoal lying 400 yards off the southern extremity of the island, and a shoal with a least depth of 4 fathoms lying 700 yards off the peninsula.

Arap Adaları, two small islets, lie in shoal depths extending northwestward from the northern extremity of İncirli Ada, the outer one being 400 yards distant, and rocks awash lie 500 yards westward of the same extremity.

9-138 Kilazomen Adası (Kartina Adası)

(Clazomenae Island) lies 2 miles southeastward of the small peninsula mentioned with İcirli Ada, the shore between them forming two bays. Bordering the island is a shoal bank with a width of 100 to 270 yards. Having sunken rocks on it in places, this bank is widest on the northeastern side of the island, and near the middle of the bank on this side is a small opening, 100 yards wide, into Quarantine Port, a small basin with depths of 5 fathoms. A sunken rock lies on either side of the opening, which is marked by a red buoy not always in position. Close northward of the basin are the ruins of an ancient mole.

This island, together with İcirli (İncirli), a small islet lying on a shoal 400 yards northward of it, shelters from the east the southeastern and larger of the two bays indenting the mainland. Further protection is afforded by a modern breakwater connecting the southern end of the island with the mainland. On the island end are a guardhouse and a telegraph office. The quarantine station for İzmir is located on Kilazomen Adası.

9-139 **Urla (Vourlah) Road** is the name given to the area of water between İcirli Ada and Pınarlı on the northeast and the mainland on the southwest. The roadstead has depths of 15 to 4 fathoms, mud and weeds. Vessels moor with an open hawse to the northward. The bay on the western side of the roadstead has depths of less than 3 fathoms, and similar depths extend as far as 200 yards from its entrance points. Water is available from a spring on the shore of the northern part of the bay.

9-140 **Urla İskeleyi (Vourlah Skala)** ($38^{\circ}22'N.$, $26^{\circ}47'E.$), the landing place for the inland town of Urla (Vourlah), is located at the head of the bay limited to the east by Kilazomen Adası. The bay has irregular

depths of 10 to 3 fathoms. A detached 3-fathom patch lies 550 yards northwestward of the southern extremity of Kilazomen Adası. About 250 yards farther northwestward of this patch is a similar patch.

In 1929 a vessel anchored 500 yards northeastward of the landing place in a depth of $5\frac{1}{2}$ fathoms, mud, with the southern extremity of Kilazomen Adası bearing 089° and the islet of İcirli, 033° .

From Urla İskeleyi a road runs to Chesme, via Urla, and another road leads to İzmir, with which steamer service is maintained.

Directions.—Vessels are permitted to anchor off Kilazomen Adası and Urla İskeleyi, but failure to comply with the following directions will involve prosecution. To reach these anchorages, vessels must approach from a position 3 miles 075° from the northern point of Yassica Ada and use the passage southward of the island of Pınarlı. Vessels from İzmir may go direct. The passage between the 5-fathom curve 200 yards southward of the island of Pınarlı and the 10-fathom curve 100 yards northward of the islet of İcirli is 1,200 yards in width and has depths of 14 to 10 fathoms.

9-141 **Coast.**—The southern shore of İzmir Körfezi between Kilazomen Adası and the low projecting point of Yeni Kale (Sanjak Kalessi), 12 miles east-northeastward, is clear of dangers and may be approached to a reasonable distance. The shore is backed by high hills, and 4 miles southwestward of Yeni Kale and 2 miles inland rise two peaks of a mountain, 2,864 and 2,922 feet high, named the Two Brothers (Çatal Kayar), forming a prominent landmark.

İzmir Harbor is described in section 9-154.

9-142 **EASTERN SIDE OF İZMİR KÖRFEZİ—Arslan Burnu (Cape Hydra)** ($38^{\circ}45'N.$, $26^{\circ}45'E.$, H. O. Chart 4189),

the eastern entrance point of İzmir Körfezi, is the termination of elevated land, which 3 miles southeastward of the cape attains a height of 1,245 feet. The cape is steep-to, and one-half of a mile southwestward of it and close offshore lies the islet of Kart Dere Burnu (Kartera), with rocks above water.

About 1/2 mile eastward of Arslan Burnu an oil pipeline extends about 500 yards southward from the coast; the seaward end is marked by two lighted mooring buoys.

The coast northeastward of Arslan Burnu is described in section 10-2.

9-143 Hayırsız Ada (Iersis) ($38^{\circ}43' N.$, $26^{\circ}43' E.$), a narrow island extending 700 yards in a north and south direction, lies 2 1/4 miles southwestward of Arslan Burnu and 1,700 yards offshore. A large rock above water lies 200 yards off the middle of the western side of this island. Extending 350 yards eastward from the southern point of the island is a narrow spit with a depth of 1 fathom on its extremity, off which are depths of 5 fathoms. Depths of 4 to 5 fathoms extend $26^{\circ}43' E.$, *plan on H. O. Chart 4220*), a narrow island extending 700 yards in a north and south direction, lies 2 1/4 miles southwestward of Arslan Burnu and 1,700 yards offshore. A large rock above water lies 200 yards off the middle of the western side of this island. Extending 350 yards eastward from the southern point of the island is a narrow spit with a depth of 1 fathom on its extremity, off which are depths of 5 fathoms. Depths of 4 to 5 fathoms extend as far as 250 yards southwestward from the inner half of the spit. Between these depths and Orak Adası, 600 yards farther southward, is a passage with depths of 6 to 9 fathoms.

9-144 Eski Foça (Foujes) Harbor, comprising North Harbor and South Harbor, is located between Orak Adası on the north and the headland of Deve Burnu on the south. The two harbors are separated by an irregular tongue of land, one-half of a mile long, close to the extremity of which lies an islet with a ruined fort on it, and by the islands of Sagır (Incir) Adası and Oğlak (Fener) Ada farther westward. Sagır Adası and the islet with a fort have between them a ledge with depths of 1 1/2 fathoms.

9-145 Orak Adası (Drepano Island), located one-half of a mile southward of Hayırsız Ada, extends 1 mile in a northwesterly and southeasterly direction and is oblique to the mainland, with which it is connected by shallow water at its southeastern end. In this shallow water rises a flat islet, close eastward of which is a narrow channel with depths of 2 fathoms leading into North Harbor. A low sand spit in the shape of a hook extends 800 yards southeastward from the southernmost part of Orak Adası.

Metelik Adası (Peta Islet), very small, lies three-fourths of a mile eastward of the northern end of Orak Adası and 250 yards northwestward of a point on the mainland, with which it is connected by shoal depths. Shoal depths also extend 200 yards southward and 100 yards westward from the islet.

Off the northeastern side of Orak Adası are depths of 8 to 12 fathoms, mud, where vessels could obtain anchorage sheltered from the southwestward.

9-146 North Harbor, eastward of the low sandy hook extending southeastward from Orak Adası, has depths of 13 to 5 fathoms in a somewhat circular area with a diameter of 600 yards. With the exception of the sandy hook, which is fairly steep-to, the harbor is bordered by shallow water, especially on the eastern side where a depth of 2 fathoms is found as far as 500 yards offshore. The entrance has a width of 500 yards between the extremity of the sandy hook and the shallow water extending from the mainland, and southward of this entrance is another area having a diameter of 800 yards and depths of 14 to 5 fathoms.

To enter North Harbor, vessels can pass on either side of Oğlak Ada, the passage northward of it having depths of 17 fathoms.

9-147 Oğlak Ada, a moderately high island, lies about midway between the outer extremities of Orak Adası and Deve Burnu. Being about the same size as Sagır Adası

but extending in a contrary direction to this island, Oğlak Ada is separated from Sagır Adası by a channel having a width of 400 yards and a depth of 7 fathoms in mid-channel.

A light is shown from the western extremity of Oğlak Ada.

9-148 South Harbor, entered between Sagır Adası and a point with a Venetian fort, 750 yards southeastward, recedes 1 mile in an easterly direction. The harbor has depths of 20 to 10 fathoms, and the bottom of soft mud is said not to hold well during heavy southeasterly gales, which blow out of İzmir Körfezi and come over the highland here with a violent force.

The southern side of South Harbor consists of two bays, separated by Deirmen (Değirmen) Burnu, a prominent point. The eastern bay, a well-sheltered basin having a diameter of 700 yards and general depths of 10 fathoms, sand and mud, affords anchorage. The town of Eski Foça (Foujes) is located on the eastern side of this basin, and on a hill 1 mile southeastward of the town are some conspicuous windmills.

A light is shown from Deirmen Burnu.

Deve (Dava) Burnu, the southern limit of Eski Foça Harbor, is a dark cliffy peninsula, 112 feet high. It appears like an island, as it is connected to the mainland by a low sandy isthmus, on the southern side of which is a small bay with depths of 16 to 5 fathoms, mud.

9-149 Hacılar (Haji) Limanı ($38^{\circ}38' N.$, $26^{\circ}46' E.$, *H. O. Chart 4189*), entered $1\frac{1}{2}$ miles southeastward of Deve Burnu, recedes three-fourths of a mile in a northeasterly direction. This small bay has a width of 600 yards and depths of 15 to 5 fathoms. The northern entrance point is steep-to, but a reef extends nearly 200 yards from the southern entrance point toward the northern one. About midway in and close off the southeastern shore lies another small reef.

At the head of the bay is a stream of good water.

9-150 Merminci (Merminji) Burun, the cape located 1 mile southward of the entrance to Hacılar Limanı, is the termination of high land. A shoal spit extends 200 yards southwestward from the cape. About $1\frac{3}{4}$ miles northeastward of the cape is South Wedge, a hill 1,030 feet high, and $1\frac{1}{2}$ miles northwestward of this hill is North Wedge, another hill having a height of 845 feet. Both of these hills are conspicuous, because the land drops suddenly on their southern sides.

Venedik Kayaları (Merminji Rocks), a dangerous ledge of rocks, lie 1,400 yards west-northwestward from the red cliffs of Merminci Burun; between the ledge and cape are depths of 12 fathoms encumbered by a 3-fathom patch. The ledge is 500 yards long and in places shows 2 feet above water. The ledge can be seen during the day. The western extremity of Oğlak Ada bearing 347° and well open westward of Deve Burnu leads outside of this danger.

A light is shown on Venedik Kayaları from a concrete tower, 17 feet high.

9-151 Kır Deniz (Aggria Bay), which is shallow, is entered between Panagia Point, located $2\frac{1}{2}$ miles eastward of Merminci Burun, and Kuş Burun, about $1\frac{3}{4}$ miles southeastward of Panagia Point. A narrow tongue of land, on which stand some buildings, extends $1\frac{3}{4}$ miles southward from Kuş Burun; thence the coast, which is low and broken by entrances into lagoons, trends $1\frac{1}{4}$ miles southwestward to Zargana Burun. Depths of less than 5 fathoms extend 2 miles westward from the southern end of the preceding narrow tongue of land.

In 1941 extensive shoaling was reported in Kır Deniz, and a 3-fathom patch was lo-

cated then at a position $1\frac{1}{4}$ miles southwestward of Panagia Point.

During northerly and northeasterly winds anchorage with good holding ground can be taken between Merminci Burun and Panagia Point.

9-152 Coast.—From Zargana Burun to Karşıyaka, the village on the northern side of the harbor opposite the city of Izmir, the coast line is a low, broken, marshy shore with numerous salt pans backed by extensive plains planted in wheat during the summer but flooded during the winter. At Zargana Burun, about 4 miles southward of Panagia Point, this broken shore extends westward with a width of $2\frac{1}{2}$ miles, forming what may be considered the outer southern entrance point of Kır Deniz, already described. This projecting part of the shore, compared to the remainder of the low broken shore, is fairly steep-to, the 5-fathom curve being about 1,200 yards to 1 mile offshore.

Between the broad outer southern entrance point of Kır Deniz, and Kokala Burnu ($38^{\circ}27' N.$, $26^{\circ}55' E.$, *H. O. Chart 4228*), 8 miles southeastward, the low broken shore forms a bight, and in this bight the depths are less than 5 fathoms $1\frac{1}{2}$ miles offshore with the exception of the limiting points and a position midway between them, where are located some salt pans (Tuzla). Vessels should not pass inside the 10-fathom curve abreast of Kokala Burnu, as the water 200 yards within this curve suddenly shoals to 3 fathoms.

It was reported (1963) that the coastline in the vicinity of Kokala Burnu had extended seaward about 1 mile.

Between Kokala Burnu and Pelican Spit, $2\frac{1}{2}$ miles southeastward, the 3-fathom curve is about 1 mile offshore. The Peak of Mimas bearing 304° and seen between the two northern peaks of Uzun Ada leads close southwestward of the 6-fathom curve in this same vicinity.

9-153 Directions.—Vessels are permitted to use the anchorage off the salt pans (Tuzla) between August 1st and January 1st for the purpose of loading salt, provided no cargo or no member of the crew is landed. Vessels that fail to comply with the following directions face prosecution. To reach the anchorage, vessels must approach from a position located $2\frac{1}{2}$ miles eastward of Hekim Ada.

9-154 IZMIR (SMYRNA) HARBOR, the eastern and narrow arm of Izmir Körfezi, extends about 11 miles in an easterly direction from Pelican Spit. Abreast of Pelican Spit the depths are 21 to 18 fathoms in mid-channel; thence they decrease gradually to 6 fathoms in a position three-fourths of a mile eastward of Yeni Kale. Increasing gradually again the depths reach 11 fathoms abreast of Kalifatia, after which they decrease gradually toward the head, where the 3-fathom curve is one-fourth to one-half of a mile offshore.

Radar target.—It has been reported that Izmir harbor is a good radar target with an echo range of 12 miles under normal conditions.

9-155 Northern side.—Pelican Spit ($38^{\circ}25' N.$, $26^{\circ}57' E.$, *H. O. Chart 4228*), the extremity of which is about $2\frac{1}{2}$ miles southeastward of Kokala Burnu, extends from the southernmost part of the low and broken-up delta of the Gediz Nehir (Khediz Chai), the principal mouth of which formerly emptied at this delta but now has been diverted into Kır Deniz. This spit is subject to changes.

The northern end of Yeni Kale in range 079° with a remarkable sharp hill eastward of the city of Izmir leads southward of Pelican Spit.

A light buoy, a spherical buoy painted yellow, is moored in a depth of 10 fathoms

off Pelican Spit. Vessels must pass southward of this buoy.

An aviation light is shown about 6 miles northeastward of Kokala Burnu.

9-156 Coast—Spits.—From Pelican Spit to a position westward of the village of *Karşıyaka* the northern shore of the harbor is of the same broken and marshy character as that northwestward of Pelican Spit, being in fact the delta of the *Gediz Nehir* (*Khediz Chai*), several mouths of which formerly discharged into the bay formed along this part of the shore. Since the outlet of this river has been changed, this bay is now shallow and has numerous small islets, some of which are covered with rushes. Before reaching the village of *Karşıyaka* the shore takes a more defined character.

Sanjak Spit, located 3 miles east-northeastward of Pelican Spit, is the southern part of an extensive flat extending from the above-mentioned bay toward *Yeni Kale* on the opposite shore. The depth on the southern extremity of the spit is $2\frac{1}{4}$ fathoms. Between Pelican Spit and *Sanjak Spit* but northward of the extremities of these two spits are the southern extremities of two other shallow tongues, named *Basake Spit* and *Khara Chamury* (*Swan Spit*). About 1 mile east-northeastward of *Sanjak Spit* is the extremity of *Kathura Spit*.

Karşıyaka (*Cordaleo*), the village located on the northern shore opposite the city of *Izmir*, is a resort frequented by the inhabitants of the city. There are some bath houses, a marine promenade, and several landing piers, one of which is used by the ferry service. At *Naldöken*, located farther northeastward, is a jetty, close eastward of which is located another short jetty. A light is shown from the end of the latter jetty. About 660 yards eastward of this jetty is a longer jetty with a light at the end.

Several mooring buoys are located in the vicinity of a submerged pipeline which extends north-northeastward to *Naldöken*.

A light buoy marks the seaward end of the pipeline.

Beacon.—A black beacon stands on *Kathura Spit* about $\frac{3}{4}$ mile northward of its southern extremity.

A patch, with a depth of 35 feet, lies near the southern extremity of *Kathura Spit* in a position about 1,650 yards east-northeastward of *Yeni Kale*.

9-157 Southern side.—*Yeni Kale* (*Sanjak Kalessi*) ($38^{\circ}25'N.$, $27^{\circ}01'E.$, *H.O. Chart 4228*), located 3 miles eastward of Pelican Spit, is a low point easily recognized by the castle standing on it. A conspicuous minaret is about $1\frac{1}{2}$ miles southward of the castle. A light is shown from the end of a pier close southeastward of the castle.

Channel.—The channel between *Yeni Kale* on the south and *Sanjak Spit* on the north is partly blocked by wrecks, and has a least depth of 7 fathoms. It is reported that a vessel cannot pass another in this fairway. The outbound vessel is the privileged one.

Light buoys.—The fairway of the above-mentioned channel is marked by three light buoys, and is said to be only 400 feet wide between these buoys. The western one on the northern side is painted green and shows a group flashing green light; the eastern one on this same side is painted red and shows a group flashing red light. The buoy on the southern side is painted black and shows a flashing white light. These light buoys are liable to be washed away.

Wreck.—A wreck, dangerous to navigation, lies sunk 1,640 yards east-northeastward of *Yeni Kale*. The wreck is marked by a green buoy with a topmark consisting of 2 cones, point to point.

9-158 Çakal Burnu (*Jackel Point*) is 2 miles eastward of *Yeni Kale*, and the intervening shore forms a slight bight. This point is the extremity of a narrow tongue of land extending 1,300 yards in a north-northwesterly direction, and on the point are some huts. A fishery is located immediately westward of this narrow tongue of land. Depths of less than 3 fathoms extend 500 yards northeastward from *Çakal Burnu*.

9-159 Göztepe (Keos Tepe) Bay is the name given to a bight, 2 miles wide, immediately eastward of Çakal Burnu. Along the shore from west to east are the suburbs of Güzelyalı, Göztepe, and Kalifatia.

The city of İzmir is built along the shore from the eastern entrance point of Göztepe Bay to Darağaç Burnu (Daragaz Point), about 3 miles northeastward. Forming the head of the harbor, the shore at Darağaç Burnu turns east-southeastward for a distance of $1\frac{1}{4}$ miles, then northward for a distance of 2 miles, and finally westward and southwestward for a total distance of $2\frac{1}{2}$ miles to the village of Karşıyaka.

A conspicuous grain elevator is located about 560 yards southeastward of Darağaç Burnu; a church is located about 500 yards southwestward of the grain elevator.

9-160 İç Liman ($38^{\circ}26' N.$, $27^{\circ}08' E.$, plan on *H. O. Chart 4228*), the inner harbor at İzmir, is an artificial harbor built abreast the city. Off the quay fronting the greater part of the city is a detached breakwater, which from south to north trends first north-northeastward, then northward, and finally northeastward. Between the southern pier, forming the southern side of the harbor, and the coal depot on the detached breakwater is the southern entrance with a width of 130 feet and a depth of 27 feet. Between the Passport Pier, forming the northern side of the harbor, and the northeastern end of the detached breakwater is the northern, or main, entrance having a width of 255 feet and a depth of 36 feet in the fairway. The general depths in the harbor are 39 to 30 feet.

The size of the inner harbor does not permit its use by more than three or four vessels of 8,000 to 10,000 tons, the limiting length being about 500 feet. Vessels are sheltered from all weather, but the holding ground is not very good.

A submarine cable is laid from the southern extremity of the detached breakwater, south-southwestward to the opposite shore.

Close eastward of Dargac Burnu a pier extends from the shore north-northwestward for about 300 yards, thence northeastward for about 400 yards. There is a dredged depth (1959) in the approach channel to the pier of 39 feet; an area within a 200 yard radius, the center of which is about 200 east-northeastward of the head of the pier, had been dredged (1959) to 36 feet, the eastern side of the pier has been dredged (1959) to 34 feet and there are charted depths of 35 feet alongside the northern portion of the pier extending to its head.

Lights.—A light is shown from the northern extremity of the detached breakwater. A light is shown from the head of a Passport Pier, and another light is shown from the southern extremity of the detached breakwater.

9-161 Anchorage.—The roadstead in İzmir Harbor is spacious, and vessels can anchor as convenient westward or northwestward of the detached breakwater. The holding ground is good. A good berth can be had in 8 to 10 fathoms from $1\frac{1}{2}$ to $3\frac{1}{4}$ mile westward of the breakwater.

In 1966 the USS Albany anchored in 9 $1\frac{1}{2}$ fathoms, 1,000 yards westward of the light shown from the northern extremity of the detached breakwater.

The quarantine anchorage is located close northwestward of the breakwater.

Submarine cables.—Submarine cables extend across İzmir Harbor from about $\frac{1}{2}$ mile south-southwestward of Darağaç Burnu, in a northwestern direction to the opposite shore. The easternmost cable extends about $1\frac{1}{4}$ miles northwestward thence northeastward to the opposite shore.

Tides.—The mean high-water interval at İzmir is 9h. 13m. The mean range is 1.5 feet; the spring range, 2.5 feet.

The sea level rises with a southerly wind and falls with a northerly wind, the level varying 3 or $3\frac{1}{2}$ feet.

Currents.—Ordinarily, there is a westerly set of $\frac{1}{4}$ to $\frac{3}{4}$ knot. However, after periods of strong sea breezes, when the wind falls, the current may attain rates up to $1\frac{1}{2}$ knots.

9-162 Regulations.—Mariners should make themselves acquainted with the following port regulations before entering the port limits:

The port of Izmir comprises the space eastward of a line joining Güzelyalı, situated about $1\frac{1}{4}$ miles southeastward of the northern extremity of Çakal Burnu, and Sas Burnu, located $1\frac{1}{4}$ miles northwestward of the village of Karşıyaka.

The port is divided into three parts, the outer, middle, and inner ports.

The outer port is the space contained between the line described above and that which joins Karşıyaka and the slaughter house about $2\frac{1}{2}$ miles southward.

The middle port is the space eastward of the eastern limit of the outer port, to the line which joins the northern entrance of İç Liman to the jetty at Naldöken, situated about 1 mile northeastward of Karşıyaka.

The inner port is the space which lies eastward of the eastern limit of the middle port. The jetty is considered to be in the inner port.

Vessels may anchor in Göztepe Bay, situated in the outer port, without previous permission, but, having anchored, the vessel's position must be reported, immediately, to the Harbor Master. When there is no room to anchor in the middle or inner ports, vessels, should anchor in the outer port and wait their turn.

Vessels must not anchor in the port without the authority and instructions of the Harbor Master, except in Göztepe Bay, or go alongside.

Anchorage is prohibited on the telephone cable, the position of which is indicated on the chart. The cable is marked at each landing place by a black board with a white, inverted, anchor on it.

Vessels anchoring, except in Göztepe Bay, or going alongside, without permission, will be subject to the provisions laid down by the Turkish Government, and, if they do not change berth, when ordered to do so, will be moved by the Harbor Master.

Vessels are forbidden to anchor near tunny nets or fish ponds.

Inflammable materials are divided into three categories:

First category.—Explosive materials.

Second category.—Materials with a flash point of, or below, 60° C.

Third category.—Materials which ignite, with difficulty, at a temperature of more than 60° C.

The following inflammable materials are included in the first category: Melinite, picric acid, gunpowder, nitroglycerine, dynamite, gun cotton, fulminate of mercury, and similar materials.

The second category includes: Alcohol, paraffin, gasoline, all the products of petroleum, turpentine, calcium carbide, and all similar materials.

The third category includes: Fuel oil, matches, and similar materials.

Vessels with a cargo of explosives of the first category must not enter, in any circumstances whatever, the middle or inner ports, but must anchor in Göztepe Bay, in the outer port, at a distance of at least 300 metres (984 feet) from the shore.

Vessels with a cargo of inflammable materials of the second category must anchor in the place allotted

to them in the inner port, at the same distance from the shore.

Vessels burning fuel oil, but without cargo of it, are not included in the inflammable materials regulations.

Vessels having a cargo of products contained in the first and second categories must show, from the time of their entry in the port until their cargo is discharged, the flags and lights as laid down in the International Code of Signals.

The transshipment of explosive and inflammable materials is not allowed except in the anchorage set apart for the purpose in the outer port.

The embarkation, disembarkation, and transshipment of explosives and inflammable materials must be done between the hours of sunrise and sunset.

Navigation in the port is subject to the Regulations for Preventing Collisions at Sea.

Vessels which enter the port must, when crossing eastward over the western limit, display the national (Turkish) flag, their company flag, and their ship's number. Every vessel which enters the port must have an anchor ready to let go.

Steam and motor vessels under way in İç Liman must navigate at a speed that will not disturb boats moored to the jetty.

Vessels and boats incapable of maneuvering, such as diving boats, etc., must show a basket during the day and a white light at night.

Boats engaged in fishing with nets, etc., must show a second white light in the direction of their gear, at a least distance of 5 feet in the horizontal plane and 7 feet in the vertical direction, from the first light.

Vessels and boats whether stationary or underway must show the lights and signals as prescribed in the Regulations for Preventing Collisions at Sea.

Only vessels anchored in the outer port may change berth without previous permission from the Harbor Master. Any vessel compelled to change berth must report to the Harbor Master and state the reason.

Refuse, etc., must not be thrown overboard in İç Liman, nor in certain other places as defined by the Harbor Master. If there is urgent necessity to discharge refuse, etc., boats must be hired for the purpose to take it to places ordered by the Harbor Master.

Care must be taken to prevent refuse, etc., from falling into the water while discharging.

Fuel oil, etc., must not be ejected into the port.

It is forbidden to make unnecessary noise or discharge firearms of any description in the port.

All vessels entering or leaving İç Liman must do so by the northern entrance.

A green flag by day or a flashing green light at night on the eastern side of the entrance indicates that the entrance is free to incoming vessels. A red flag indicates that a vessel is leaving the port and that the incoming vessel must wait outside.

A fixed red light is exhibited by night on the western side of the entrance to indicate that the entrance is free to outgoing vessels and prohibited to incoming vessels.

A pilot boat, displaying a white pennant with a red anchor on it, will instruct vessels where to moor and will assist in securing the hawsers.

Vessels entering the basin must not have alongside, or in tow, any craft other than that of the pilot.

The sanitary, customs, and police visits to vessels from foreign ports are made in the middle port before the entry of the vessel into İç Liman. In bad weather these visits may be made on the entry of the vessel on the northern side of the jetty.

Smoke must not be made in the port, and fires must not be stoked heavily by a vessel leaving the port until the western limit of the middle port is cleared.

Vessels wishing to leave after sunset must obtain permission from the Harbor Master.

9-163 Pilotage.—Pilotage is compulsory for İç Liman, the inner harbor. Pilots normally board vessels off the entrance to İç Liman about 1 mile west-southwestward of Daragac Burnu. However, pilots will board in the vicinity of Pelican Spit Lighted Buoy only on specific request given 24 hours in advance of arrival. The pilot boat shows the usual International signals. Customs and health officers board in the vicinity of the northern entrance of İç Liman.

9-164 Directions.—Navigation in İzmir Körfezi presents no difficulties, the range marks being clearly distinguishable. A vessel should keep along the eastern side of Uzun Ada at a distance of 1 to 1½ miles offshore, taking care to keep well clear of the shallows extending from the low eastern shore of the gulf abreast of this island. When

abreast of Hekim Ada, a vessel should steer for the two conspicuous peaks situated 4 miles southwestward of Yeni Kale, and then keep close along the southern shore, which is all steep-to. When about 2 miles westward of Yeni Kale, a vessel should edge northward, and steer to pass between the light buoys north of Yeni Kale on a course of 072°. When clear of these buoys steer for the anchorage west of Ice Liman.

9-165 İZMİR (SMYRNA) (*38°26' N., 27°08' E., H. O. Chart 4228*) is the gateway to the western part of Anatolia and serves most of Turkey in Asia except the northern and southern parts and the extreme eastern part. Located at the eastern end of İzmir Körfezi, the city is built at the foot of Mt. Pagus, on the summit of which are the walls of a ruined castle. The streets are wide and well laid out except in the old bazaar districts. Sanitation is fair, and the water supply is pure. Local transportation is modern.

In 1965 the population was about 1,182,000.

Wharves.—İç Liman, the inner harbor, has about 14 berths, 6 of which are suitable only for small vessels of 1,000 to 2,000 tons. Vessels anchor stern to the quay where there are depths of 12 to 24 feet alongside. The depths increase a short distance from the quay. In 1955, a vessel drawing 27'02" discharged with her stern secured to the quay.

The pier at Daragac Burnu has about 3,280 feet of berthing space with depths of 26 to 38 feet.

A pier extends north-northwestward and northeastward from a point about 200 yards eastward of Daragac Burnu. There are depths of 34 feet along the southeastern side and 35 on the northwestern side.

Two piers are located about 1¼ miles northward of Daragac Burnu. The westernmost pier, used for discharging oil, has a depth of 24 feet at its head. Tankers secure their sterns to the head of the pier and use both anchors forward.

About 1 mile south-southwestward of the oil piers is a submarine pipeline mooring. This berth will accommodate tankers with drafts not exceeding 34 feet.

The port has a 60-ton floating crane, five cranes with 3- to 5-tons capacity, 12 tugs, and about 70 lighters.

Repairs.—Only minor repairs to machinery can be made. Several divers with limited equipment are available, and salvage tugs may be obtained from Istanbul. There are several small marine railways.

Supplies.—A small quantity of coal is kept in stock. Coaling is carried out at the coal depot on the detached breakwater, where there is a depth of

24 feet alongside, at the railway pier, or from lighters at the anchorage.

Fresh provisions are plentiful. Water is piped to the quay in İç Liman. One water boat with a capacity of about 200 tons is available. A large stock of Diesel oil is kept on hand; it can be supplied by lighter.

Communications.—İzmir is connected to the general railroad, telegraph, and telephone systems of Turkey. Numerous steamship lines make İzmir a regular port of call.

Hospitals.—The city has good hospital facilities.

Quarantine.—The quarantine anchorage, where the

inspection is carried out, is located one-half of a mile west-northwestward of the northern entrance to İç Liman. Vessels arriving with a foul bill of health, or unprovided with a bill of health, are subject to quarantine, which is carried out at Urla Road. Passengers are disembarked at the lazaretto on Kılazomen Adası.

Deratization can be carried out at Urla Road. Deratization certificates and deratization exemption certificates are issued.

Consul.—The United States is represented by a consular officer.

Meteorological table.—See appendix II.

CHAPTER 10

TURKEY—İZMİR KÖRFEZİ TO ALEXANDROUPOLIS

10-1 ÇANDARLI KÖRFEZİ (GULF OF SANDARLI OR CHANDARLI) (*H. O. Chart 4225*), the large gulf indenting the coast of Turkey in a position immediately northward of İzmir Körfezi, is 13 miles in its entrance between Arslan Burnu (Cape Hydra) on the south and Cape Mal-tepeh on the north, and recedes about the same distance in a general northeasterly direction. The irregular shores of this gulf are indented by bays, separated from each other by bold headlands; some parts of the shore are low and marshy. Several of these bays afford good anchorage. Several islands lie close off the outer part of the northern shore, and several more lie in the central part of the gulf.

Winds.—The gulf is subject to strong and sudden changes of wind. The most prevalent in the summer are the meltemi (northerly winds), which come on suddenly and blow hard. Strong northerly winds are often preceded by the formation of a cloud on the summit of Kara Dağ (Mt. Karadagh), located within the northern shore of the gulf. At other times in the summer the land and sea breezes are regular. Winds from the north and the northeast are frequent in the winter.

10-2 SOUTHERN AND SOUTHEASTERN SIDES OF ÇANDARLI KÖRFEZİ—Coast.—From Arslan Burnu (sec. 9-142), the southern entrance point of Çandarlı Körfezi, as well as the eastern entrance point of İzmir Körfezi, the coast trends 4 miles east-northeastward of Yıldırım Kaya Burnu (Cape Chemali); this irregular stretch of

the coast is bold and steep-to. Seri Nisi, a small islet, lies 1 mile eastward of Arslan Burnu and close off the coast, from which it is separated by a channel having sunken rocks in it. Çanak Limanı (Chanakia Liman), the inlet located about midway along this stretch of the coast, is 1 mile wide in its entrance between Ak Burnu (Makrea Punda) on the west and Soja Kavo on the east. Receding three-fourths of a mile in a west-southwesterly direction and having an average width of one-fourth of a mile, this inlet has depths of 22 fathoms in its entrance and 2 fathoms close off its head. A shoal with a depth of $4\frac{1}{2}$ fathoms extends 200 yards northward from Yıldırım Kaya Burnu.

10-3 Yeni Foça (Foggia Nova), the bay entered 5 miles eastward of Arslan Burnu, is about $1\frac{1}{4}$ miles wide in its entrance between Ramazan Burnu (Aspro Kavo) on the west and Yezil Burnu (Asko Petra) on the east, and, gradually decreasing in width, recedes 1 mile southward to its head, where is located the town of Yeni Foça (Foggia Nova). A point projects eastward from the middle of the western shore, and about 400 yards northeastward of this point lies Burun Ucu (Xero Punda), a shoal with a depth of 1 foot over it. Between this shoal and the western entrance point of the bay are depths of less than 5 fathoms.

It has been reported that Aspro Kavo is a good radar target with an echo range of 19 miles under normal conditions.

Although this bay is open to the north, there is no danger in anchoring here, as the

fetch is not great and the holding ground is good. To enter, a vessel should steer a course at a moderate distance off the eastern shore, and anchor in a depth of 8 to 9 fathoms, mud, about 800 yards off the town of Yeni Foça.

10-4 Uzun Avlı Koyu (Urzun Avli) is the larger bay located immediately eastward of that of Yeni Foça. It is about $2\frac{1}{2}$ miles wide in its entrance and recedes $1\frac{3}{4}$ miles in a southerly direction. Depths of less than 5 fathoms extend as far as 500 yards from the southwestern shore of this bay. Nisiki Partheni, three large rocks above water, are joined by shallows to Karaca Doğan Burnu (Karaja Dagan Burnu), the eastern entrance point of the bay.

Caution.—See "Regulations," in section 9-126, with reference to vessels not being permitted to call at ports on the coast of Turkey.

10-5 Namrud Limanı (Namurt Liman), a smaller bay than that of Uzun Avlı Koyu, is entered between Karaca Doğan Burnu and an unnamed point 1 mile northeastward. Shallow depths with rocks extend 400 yards from the shores of this bay; elsewhere in the bay the depths are 6 to 16 fathoms, mud. On the eastern side of the bay are the ruins of ancient Cyme.

10-6 Üç Köşe Burnu (Cape Utch-keu-cheh), about 3 miles north-northwestward of the entrance to the bay of Namrud Limanı, is the termination of a high, bold, rocky peninsula extending 1 mile northwestward from the southeastern shore of Çandarlı Körfezi. A sunken rock lies close off this cape; shallows with rocks above water also extend 600 yards from the shore in a position about midway between Üç Köşe Burnu and the entrance to Namrud Limanı.

Islets.—Five barren islets, which, with the exception of the two northeasternmost ones, are steep-to, lie in the entrance to the

inner half of Çandarlı Körfezi. Tavşan Adası (Plati) the southernmost and largest islet, lies $1\frac{1}{2}$ miles northward of Üç Köşe Burnu. Küçük Ada (Mikra), a very small islet, lies one-half of a mile northward of Tavşan Adası, and one-half of a mile eastward of Küçük Ada is a larger islet, named Prasa (Prassa) Adası. İkizler Ada (Adelphi), the two northeasternmost islets, lie close together in a position $1\frac{1}{2}$ miles north-northeastward of Prasa Adası and 2 miles off the northern shore of the gulf. These two islets lie on a rocky shoal, which, with a least depth of 4 fathoms, extends as far as 500 yards westward from them. The eastern of these two islets has several low lying rocks within 100 yards of its northern and eastern shores.

10-7 Coast.—Between Üç Köşe Burnu and Taşlı Burnu, $2\frac{1}{2}$ miles east-northeastward, the coast is irregular, consisting of alternating cliffs and beaches. Shallow depths with sunken and above-water rocks extend 400 yards off the shore, and from these depths in a position 1 mile west-southwestward of Taşlı Burnu rises a small islet, named Taşlı Ada.

10-8 Ali Ağa Liman (Port Ali-Agha) ($38^{\circ}50' N.$, $26^{\circ}58' E.$, *H. O. Chart 4225*), located along the southeastern side of the gulf, is an almost circular bay open to the north through its entrance having a width of three-fourths of a mile. This large bay with a diameter of $1\frac{3}{4}$ miles has shallow depths bordering its eastern and southern shores, and detached shoals with a depth of 3 fathoms lie as far as one-half of a mile off the southern shore. In the remainder of this spacious bay are depths of 14 to 5 fathoms, sand and mud, good holding ground.

Taşlı Burnu, the western entrance point of the bay, is a sharp rocky point, from

which extend shallows for a distance of 250 yards. Tuzla Burnu, the eastern entrance point, is low and marshy; it also is fringed by shallow water.

10-9 Coast.—From Tuzla Burnu the coast, having shallows extending offshore as far as 400 yards, trends 1 mile north-northeastward to Kalabak Assarı; thence it turns and trends 3 miles northeastward to the entrance of Temaşalık Bucağı. Between Kalabak Assarı and Değirmi (Mt. Deirmi), a remarkable conical hill near the coast one-half of a mile eastward, is the mouth of the Guzelhisar Çay (Gusel Assar Chai). From the mouth of this river and the base of the hill extends a shallow bank for 500 yards in a northerly direction; this bank is steep to at its outer edge. Northeastward of this bank are other shallows and rocks extending in places as far as 300 yards off the coast.

10-10 Temaşalık Bucağı (Glimi Limanı, or Port Glymi) (Bektasat Sakan) (*H. O. Chart 4225*), the southern of two bays at the head of the gulf, recedes for a distance of $1\frac{1}{2}$ miles in a southeasterly direction. On the middle part of the shallow bank extending across the entrance between Burun Ucu (Achmet Ago Chifık), on the southwest, and Çakran (Sakran) Burnu, on the northeast, are the Çakran (Sakran) Adaları, two small islets connected by a reef. The depth on the bank northeastward of these islets is 3 feet, and southwestward of the southwestern islet it is $7\frac{1}{2}$ feet. The greater part of the bay has depths of less than 3 fathoms, but a small area southeastward of the islets has depths of 3 to 4 fathoms.

10-11 NORTHERN SIDE OF CANDARLI KÖRFEZİ.—Cape Mal-tepeh (Mal-tepe Burnu) ($38^{\circ}57' N.$, $26^{\circ}49' E.$, *H. O. Chart 4225*), a bold headland forming the northern entrance point of Çandarlı Körfezi,

is the western termination of Kara Dağ (Mt. Karadagh), located 3 miles inland and having a height of 2,560 feet. The cape is skirted by rocks at a short distance offshore.

For the continuation of the coast that trends northward from Cape Mal-tepeh and forms the eastern side of Mityleni Channel, see section 10-86.

10-12 Coast.—Çınarlı (Chinarin) Burnu is located $1\frac{1}{4}$ miles southeastward of Cape Mal-tepeh. This point, as well as the coast for a short distance eastward of it, has depths of less than 3 fathoms with rocks extending 400 yards from it.

Between Çınarlı Burnu and Kemikli (Chinarlı) Burnu, 2 miles southeastward, the coast, fronted by several small islands, is indented by Narlı Dere (Narli Dereh), a bay with great depths free from dangers. Shallow depths, which increase suddenly, extend a short distance from Kemikli Burnu.

10-13 Agios Georgios Islands, a group of four islands or islets, front the bay of Narlı Dere. İki Kardeşler (Eki Kardarslar), the two northernmost islets of the group, lie close together in a position one-half of a mile westward of Çınarlı Burnu. These two islets are surrounded by a shallow bank, and the deep fairway between this bank and the shallow depths extending from Çınarlı Burnu has a width of about 600 yards.

Mardalıç Adası (Kiz Kulesi Ada, or Tzorzi Kalessi), the large island of the group, lies about 700 yards southward of İki Kardeşler, from which islets it is separated by a deep passage. A ruined tower stands on this island. An inlet indents the western coast, and in this inlet is an islet connected to the head of the inlet by a shallow bank. The coast northward of the inlet is fringed by rocks. Depths of $2\frac{3}{4}$ fathoms extend 200 yards from the northeastern coast in a position 400 yards northwest-

ward of the eastern point of the island.

Kermen (Kormen) Adası, the southernmost islet of the group, lies one-half of a mile southward of Mardalıç Adası. Depths of 4 fathoms extend 400 yards westward from the northern point of this islet. There is shoal water between Kermen Adası and Mardalıç Adası.

Shoal.—A shoal, the position of which is doubtful, was reported to lie one-half of a mile southward of Kermen Adası.

Coast.—Between Kemikli Burnu and Çandarlı Harbor, 4 miles east-northeastward, the coast is irregular, but shoal water nowhere extends more than 400 yards offshore.

10-14 Candarlı (Sandarlı) (Chandarlı) Harbor is located along the eastern shore of a peninsula extending three-fourths of a mile in a southerly direction. On this peninsula is built the town of Çandarlı (Mardalıç) (Sandarlı). Eski Adası, a small islet, lies off the eastern entrance point, from which it is separated by a narrow channel with a depth of 31 feet. The main entrance to this small harbor is westward of the islet, where the harbor has depths of 10 to 5 fathoms. A 14-foot shoal lies in the center of the deeper part of the bay. Depths less than 5 fathoms extend 100 yards from the northern shore of the harbor, and a similar distance both northward and southward from the islet.

Coast.—Between the eastern entrance point of Çandarlı Harbor and Kadirga (Katiga) Burnu, $3\frac{1}{4}$ miles southeastward, the coast is low, flat, and marshy; shallow depths extend 400 yards offshore. About midway along this coast is the mouth of the Bakir Cay.

10-15 Dema Liman (Demali Limani), the bay forming the northern part of the head of the gulf, is $1\frac{1}{2}$ miles wide in its entrance between Kadirga Burnu on the northwest and Çakran Burnu on the southeast, and recedes about $2\frac{1}{4}$ miles in a northeasterly

direction. The inner part of the bay is very shallow. Çakran Burnu, also the northeastern limit of the entrance to Temaşalık Bucağı (sec. 10-10), is the termination of a rather high promontory trending in a southwesterly direction. Eastward of the inner part of the bay rises Darisment Dağ (Mt. Sakarkeya), 1,240 feet high. The western side of the bay is low and flat, and extending eastward from the middle part of this side is an irregular peninsula with shallow depths extending some distance from its southern side.

A pier with a customhouse is located on the eastern side of the inner part of Dema Liman. The town of Resadiye (Elæa) (Zeytindag) is located $1\frac{1}{4}$ miles northward of the pier. About midway between this pier and the extremity of the peninsula extending from the western side of the bay there is anchorage for small vessels in a depth of 5 to 6 fathoms, mud.

10-16 MITYLENI (MYTILINI) (LES-VOS) ISLAND (*H. O. Chart 4188*), a large island belonging to Greece and officially known by its ancient name of Lesbos, is located in the eastern part of the northern part of the Aegean Sea. Fronting the Gulf of Adramyti (Edremit Körfezi), this island is separated from the mainland of Turkey by Mityleni Channel to the east and by Muselim Channel to the north. This rather mountainous island extends $38\frac{1}{2}$ miles in a west-northwesterly and east-southeasterly direction and has a maximum width of $24\frac{1}{2}$ miles in its middle part. Some of the high summits are Mt. Olympus (Olimbos), 3,176 feet high, located in the southeastern part, Mt. Lepethymnos (Lebetimnos), 3,176 feet high, located in the northern part, and Mt. Ordymnos (Ordhimnos), 1,680 feet high, located in the western part. The rivers are mountain torrents for the most part.

It has been reported that the island of Mityleni is a good radar target with an echo range of 16 miles under normal conditions.

Port Kalloni penetrates deeply into the interior and nearly divides the island into a western, northern, and southeastern part, the last-named part being further indented by Port Iero. Islets and rocks lie in a number of places around the island, especially along the northern part of the eastern coast, in the southwestern approach to Port Iero, along the western coast of the island, and in the southern approach to Molivo Road; elsewhere navigation is safe at a distance of 1 mile offshore except for Muselim Rock, the most off-lying danger, which is located in the middle of Muselim Channel.

Port Kalloni and Port Iero, both entered on the southern side of the island, afford well-sheltered anchorage, but entrance into them is difficult on account of the long, narrow, and intricate fairways in their entrance. Artificial harbors have been constructed at the city of Mityleni and at the town of Potamos. In addition to these Port Sigri affords good anchorage. None of the remaining bays formed by the irregular coast afford safe anchorage except during offshore winds.

10-17 Population and industry.—In 1961 the island of Mityleni had a population of about 140,300.

Agriculture constitutes the principal interest of the inhabitants. The principal crop is olives; they are not edible but are used in the production of olive oil. Other crops are grain, tobacco, and grapes. Limited quantities of charcoal and resin are obtained from the forests. The raising of cattle flourishes on the island, and some fishing is carried on. Products from olive oil are manufactured for export.

Climate.—The climate is mild. Snow rarely falls, and then only covers the high summits for a short period of time. Days of rain are about 76 on the average per year, most of the rain falling in the winter.

The humidity has its maximum (85) in December and its minimum (57) in July. The prevailing winds are from the north and west, being usually of a slight intensity but alternating sometimes with violent blasts. The number of days with a wind of force 6 do not exceed 30 in a year.

10-18 SOUTHERN SIDE OF MITYLENI ISLAND.—Cape Zeitin (Malea) ($39^{\circ}01' N.$, $26^{\circ}37' E.$, *H. O. Chart 4222*), the southeastern point of Mityleni Island, as well as the southwestern limit of Mityleni Channel, is bold, and the land $3\frac{1}{2}$ miles northwestward of the cape attains a height of 1,729 feet in Mt. St. Marino. A spit with depths of 3 fathoms extends 300 yards southeastward from the cape, which should be given a wide berth. On this spit is a rock above water, and close to the coast about two-thirds of a mile westward of the cape are charted two other similar rocks, the eastern one being named Simblo Rock (Khaviaropetra).

A light is exhibited from a small white tower on a tile-covered dwelling that stands on Cape Zeitin (Malea).

10-19 PORT IERO (OLIVIERI) (KOLPOS YERAS), a large landlocked harbor penetrating the southeastern part of Mityleni Island for a distance of 8 miles in a northwesterly direction, affords well-sheltered anchorage, good holding ground, for a considerable number of vessels, and was used in past wars as a base. It is surrounded by small hills covered with olive trees, and back of the hills rise greater heights. The entrance to this harbor is through an intricate channel having a length of $3\frac{1}{2}$ miles; the fairway of this channel has a least depth of $4\frac{3}{4}$ fathoms and in its narrowest part a width of only 100 yards.

10-20 Entrance channel—Dangers.—Between Cape Zeitin and Balbi (Valvi) Point, 3 miles west-southwestward, the southern coast of Mityleni Island, is indented by a large bay, which, together with the islet of Prophylaki to the southward, makes simple the recognition of the entrance channel located at the northwestern recess of this bay. Westward of Balbi Point stands Mt. Petras, which has a conspicuous bluff at its western end.

10-21 Exo Point, the outer northern entrance point of the entrance channel, is located $2\frac{1}{4}$ miles westward of Cape Zeitin, and the western half of the intervening coast recedes northward to form an open bight. Aristeno (Aristero) Point, the inner northern entrance point, is located three-fourths of a mile west-southwestward of Exo Point, and between them is a small bay having depths of less than 5 fathoms close off its head.

Mid-rock (Kaloyeros), a rock 6 feet high, lies on the northern side of the fairway in a position about 300 yards southeastward of Aristeno Point. As this rock was difficult to make out, having the same color as the background, a white stone beacon, 21 feet high, was erected on this rock.

10-22 Foul Point (Cape Kavourolimni) 95 feet high, the southern entrance point of the entrance channel, is located one-half of a mile south-southeastward of Aristeno Point, and is the extremity of a peninsula extending one-half of a mile northeastward from the western shore of the large bay forming the approach to the entrance channel. This point can be distinguished by a detached reef near its extremity, which terminates in a shingle beach having a reef extending 300 yards northward from it.

Kavourolimni Bay, entered westward of the reef extending northward from Foul Point, is about one-third of a mile wide in

its entrance between Foul Point to the southeast and Dexia Point to the northwest and recedes 800 yards in a general south-southwesterly direction to its head, where it is shallow. No dangers exist along the shore of this bay.

10-23 White Crag, a 60-foot hill covered with olive trees except for its white bare summit, stands on an easterly projection located 600 yards northwestward of Dexia Point.

Reef Rock, having a height of 15 feet and a brown color, lies on the extremity of a spit having depths of 2 fathoms and extending 350 yards east-southeastward from the point at the base of White Crag. The fairway is northeastward of this rock.

From White Crag the entrance channel trends about three-fourths of a mile northward. On the western side of the fairway in a position about midway along this reach lies Square Rock, above water. A 1-fathom spit extends 75 yards southeastward from Square Rock. A shoal with depths of 1 to 5 fathoms extends 150 yards from the western shore in a position 700 yards northward of Square Rock. The passage westward of Square Rock has depths of less than 3 fathoms. The eastern shore northeastward of this shoal is indented by the cove of Palaioloutros, where there are some landing piers.

10-24 The entrance channel, from abreast of Palaioloutros, trends first one-half of a mile northwestward and then one-half of a mile north-northwestward to a position where the eastern shore is indented by a bay receding over one-half of a mile in an easterly direction. Along these two reaches depths of less than 5 fathoms extend only a short distance from the eastern shore and as far as 200 yards from the western shore. At the head of the bay are several factories with landing places and conspicuous chim-

neys and some houses of the port for the inland town of Loutra.

Depths of less than 5 fathoms extend 400 yards from the head of the bay and 200 yards from the southern entrance point, but the remainder of the bay with depths of 6 to 8 fathoms affords anchorage to large vessels with complete safety from all winds. The settlement of Perama, which has some landing piers with slight depths, is located on the western side of the entrance channel in a position abreast of this bay. Perama had (1960) a population of about 20,000. At the northwestern end of Perama stand a tannery. The tannery has a pier with a length of 230 feet and a depth of 12 feet at its head. A few lighters are available. Provisions, water, and fuel oil are available in limited quantities.

Northward of Perama the entrance channel trends northward and widens out before joining the landlocked harbor of Port Iero. Commencing at Perama shallow depths extend a considerable distance from the western shore, and the fairway with a least depth of $4\frac{3}{4}$ fathoms and a least width of only 100 yards is near the eastern shore. Sidero (Ayios Isidhoros), a small islet 35 feet high, lies 200 yards off the eastern shore at the northern end of this final reach of the entrance channel.

A light, exhibited at an elevation of 30 feet, is located on a mast at the head of a pier.

A submarine cable crosses the channel at a point about 1 mile southeastward of the light. Anchorage is prohibited within 200 yards on either side of the cable.

10-25 The harbor proper of Port Iero extends 4 miles in a northwesterly and southeasterly direction and has a maximum width of 3 miles. The general depths are from 10 to 7 fathoms, and the 5-fathom curve is over one-fourth of a mile offshore in places. At the northwestern recess of the harbor is Hippi Scala, the landing place for

the inland villages of Ippios, Kato Tritos, and Ayiassos, and at the southwestern recess is the landing place for the inland villages of Palaokipos, Misagro (Mesagros), Skopelos, Plakado (Plakadhos), and Papado (Papadhos). Some provisions may be obtained from these villages. The water from the streams discharging into the harbor is either of mediocre quality or not even usable.

10-26 Anchorage, well sheltered from all winds, may be obtained in the harbor in any convenient depth, sandy bottom, but the approach to the northern end of the entrance channel should be left clear. The best berth is in a depth of 7 fathoms about three-fourths of a mile southward of the conspicuous bathhouse located at the eastern end of the northern shore.

10-27 Caution.—During the daytime with good weather vessels with a draft up to 24 feet can enter or leave Port Iero with safety. By night or with poor visibility entry or departure is hazardous or impossible. During a southerly gale any attempt on the part of a large vessel to enter the harbor should be considered extremely difficult and very dangerous. Vessels drawing more than 24 feet should not attempt the northernmost part of the entrance channel without previously sounding and buoying the fairway. A long continuation of southerly winds is reported to increase the depths from 1 to 2 feet, and northerly winds to decrease the depth by the same amount.

10-28 Directions.—When vessels are approaching the entrance channel to Port Iero, the islet of Prophylaki and the hill of White Crag cannot be mistaken. Reef Rock will also become visible as the entrance is neared.

The summit of White Crag bearing 294° and just open northward of Reef Rock leads in depths of 19 to 17 fathoms between Mid-rock (Kaloyeros) and the shoal extending northward from Foul Point (Cape Kavourolimni). Having passed Mid-rock, keep in midchannel between Reef Rock and the northeastern shore, altering course gradu-

ally toward the north until Square Rock opens on the port bow. Steer a midchannel course between Square Rock and the eastern shore; great caution is necessary here as the fairway is only 150 yards wide and several changes in course are required. Having rounded Square Rock, keep in midchannel as far as the settlement of Perama and the bay indenting the eastern shore opposite it.

North of Perama vessels with a draft up to 24 feet can navigate the entrance channel by keeping from 100 to 150 yards off the eastern shore. Vessels with a greater draft, as has been emphasized previously, must first sound and buoy the fairway. Finally pass about 100 yards westward of Sidero Islet, after which course can be set for the chosen anchorage in the harbor.

10-29 SOUTHERN SIDE OF MITY-LENI ISLAND (*continued*)—Coast (*H. O. Chart 4188*).—From Balbi (Valvi) Point, the west-southwestern limit of the approach to the entrance channel of Port Iero, the coast trends nearly 2 miles southwestward to the entrance of Petras Bay. About midway along this coast and 1,200 yards offshore lies the small rocky islet of Prophylaki (Ayios Vasilios), which is steep-to.

Petras (Mersinia) Bay, the entrance of which is open to the south and more than one-half of a mile in width, has deep water free of dangers in its interior. Two islets, Mersenia, 131 feet high, and Petras, 164 feet high, lie in the approach to this bay. Immediately westward of Petras Bay is the small bay of Talandos, followed by that of Kopella. From the bay of Kopella the coast trends 4 miles westward to Meriko (Merikhas) Point, and the western half of this coast has shallow depths extending 400 yards offshore in places. From Meriko Point the coast, which continues to have shallow depths extending offshore for 2 miles of its length, trends $3\frac{1}{2}$ miles west-northwestward to Potamos Point; rocky shallows extend 400 yards southward from Potamos Point. Along this last-mentioned stretch of the coast are the inland settle-

ments of Angatheri and Kato Khorion and the town of Plomarion at Plomarion Harbor.

10-30 Plomarion Harbor, located about midway between Meriko Point and Potamos Point, is a small artificial harbor available only for small vessels. The harbor is formed by two jetties; the one in the western part of the town extends first 175 yards in a south-southeasterly direction and then 330 yards in an east-southeasterly direction. The one on the eastern side extends 150 yards in a south-southwesterly direction. Inside and parallel to the outer arm of the jetty is an area having depths of 18 to 22 feet and a width of 100 yards; the remainder of the harbor has depths that are considerably less, and silting has been reported. About 150 yards of the northwestern shore is quayed. Shallow depths with some rocks above water extend a considerable distance from the shore along the eastern part of the town.

A light is shown on the head of each jetty at Plomarion.

Anchorage in front of the harbor is difficult, because the depths increase abruptly, exceeding 19 fathoms at a distance of 200 yards southward of the outer arm of the jetty. The bottom is composed principally of sand and weeds.

A prohibited anchorage area extends westward of a line drawn due south from the root of the western jetty.

Southerly and southwesterly winds are very strong from October to March, and during such winds the working of cargo in the harbor is impossible.

10-31 Plomarion (Potamos), a town of about 6,500 inhabitants, is built at the base of a hill, 278 feet high. The region in the vicinity of the town is covered with olive trees, and the town has a considerable olive oil industry. Many factories with conspicuous chimneys are located in the eastern part of the town.

Fuel oil, water, and provisions are available in limited quantities; one lighter and 4 motor launches are available for services.

The town has custom, postal, and telegraphic facilities. Coastal steamers make regular calls.

10-32 Coast.—Between Potamos Point and Cape Vurkos, $7\frac{1}{4}$ miles west-northwest-

ward, the coast recedes slightly to form a bight, the western part of which is known as Khoklakari (Khokhlakaris) Bay. The Almiropotamos River empties into this bay, and about $1\frac{1}{2}$ miles inland of the bay is the town of Vrissa. During offshore winds vessels can obtain temporary anchorage in Khoklakari Bay; during southerly winds a heavy swell sets into the bay.

Cape Vurkos (Ayios Fokas) has close off it a rock above water, and about 700 yards within this cape stands a conspicuous small white house. Falcon Rock, over which the depth is less than 6 feet, lies one-half of a mile southeastward of Cape Vurkos. Vessels should give the cape a wide berth on account of these dangers.

10-33 SOUTHWESTERN SIDE OF MITYLENI ISLAND—Coast (*B. A. Chart 1665*).—From Cape Vurkos the coast trends $5\frac{1}{2}$ miles northwestward to the entrance of Port Kalloni. The first 4 miles of this coast have shoal depths with rocks above and below water extending a short distance offshore, and a spit with depths of 4 fathoms extends one-half of a mile from the coast at a position 1 mile northwestward of Cape Vurkos.

10-34 PORT KALLONI (KOLPOS KAL-LONIS) (*entrance, $39^{\circ}05'$ N., $26^{\circ}05'$ E., H. O. Chart 4221*).—General remarks.—Port Kalloni, a large landlocked gulf entered on the southwestern side of Mityleni Island, penetrates deeply into the island for a distance of about $11\frac{1}{2}$ miles in a northeasterly direction. This gulf, like that of Port Iero, is entered through an entrance channel having a minimum width of one-half of a mile and a length of 2 miles, after which the gulf proper widens out to a width of $2\frac{1}{2}$ to 4 miles. The gulf is surrounded by hills, which in many places are covered with olive trees, and farther inland is backed by mountainous country; the low land near the shore is cultivated. There are several towns and

villages around the gulf. Supplies of meat and vegetables can be procured. All of them are connected with the capital by telephone, telegraph, and highway.

Pilots can be obtained from Mityleni with prior notification and during good weather will board vessels about 600 yards southward of Kalloni Islet.

Port Kalloni, which is frequented by local vessels, affords sheltered anchorage in depths of 10 to 4 fathoms, sand. This gulf is subject to sudden and strong squalls from the high land in the interior. To enter this gulf, vessels must exercise great caution in the fairway of the entrance channel, as this fairway, although having a least depth of 11 fathoms, is only 70 yards wide in one place in its outer part.

Current.—The current in the narrows leading to the gulf attains a rate of 4 knots, at times.

10-35 ENTRANCE CHANNEL TO PORT KALLONI—Southeastern side.—Cape Kalloni ($39^{\circ}04'$ N., $26^{\circ}05'$ E., *H. O. Chart 4221*), the southeastern entrance point, is composed of rocky cliffs, 125 feet high. From Cape Kalloni the cliffy shore, decreasing in height and having shallow depths extending offshore for a short distance, trends 800 yards northward to Vromousa Point. Kalloni (Garbia) Islet, 101 feet high, lies 400 yards off the middle part of the shore between these two points. Shallows with rocks above and below water fringe the islet and extend as far as 300 yards northeastward from its northern end. The channel separating this islet from the shore has a fairway with a least depth of $3\frac{3}{4}$ fathoms and a minimum width of 200 yards. A light is shown on the northern extremity of Kalloni Islet.

Hook Point, located 600 yards east-northeastward of Vromousa Point, has close off it some rocks above water, marked by a cairn. It is in the vicinity of Hook Point that the fairway has its minimum width of 70 yards.

Between Hook Point and Armouthi Point, 1 mile northeastward, is Larcos Bay, which slightly indents the shore in a southeasterly direction. The western part of this bay is shallow. The northwestern extremity of the shoal area is marked by a light buoy moored about 275 yards northeastward of Hook Point. Lowestoft Hill, located 600 yards eastward of the eastern shore of Larcos Bay, is rounded and 470 feet high; it is a good landmark for vessels making Port Kalloni from the southward. A cairn exists near the summit of Lowestoft Hill.

Range beacons.—The front range beacon, painted white, is located on Armouthi Point 700 yards 311° from the cairn on Lowestoft Hill. The middle range beacon, painted white, is located 117 yards 067° from the front range beacon. A rear range beacon, painted white, is located about 1300 yards from the front range beacon.

These beacons in range lead through the narrow part of the entrance channel to a position about 150 yards north-northeastward of Hook Point. The northeast and the south-southwest entrances of the channel are marked by light huoyas.

10-36 Paghia Argaria (Pakhia Angaria) Point is located 1,200 yards north-northeastward of Armouthi Point. Depths of less than 5 fathoms extend less than 200 yards northward from the point, and along the shore 500 yards southwestward from the point irregular depths as low as 3 fathoms are found as far as 400 yards offshore. A lighted buoy is moored about 300 yards westward of Cape Paghia Argaria.

Range beacons.—The front range beacon, painted white, is located about 600 yards south-southwestward of Paghia Argaria. The rear range beacon, painted white, is located 550 yards 056° from the front range beacon. These beacons in range lead from a position about 150 yards north-northeastward of Hook Point to a position about 500 yards north-eastward of Hook Point.

Between Paghia Argaria Point and Perama Point, one-half of a mile east-northeastward, the shore of the entrance channel is indented in a southerly direction by Luja (Loutsa) Bay. Depths of less than 5

fathoms extend 200 yards northward from Perama Point, and 400 yards westward into Luja Bay from this same point. Perama Point is the inner limit of the southeastern side of the entrance channel into Port Kalloni.

10-37 Northwestern side.—Plati (Makara) Point ($39^\circ 05' N.$, $26^\circ 04' E.$, *H. O. Chart 4221*), the northwestern entrance point, can be distinguished by a conspicuous beacon-like rock, 60 feet high, standing 150 yards northwestward of the southern extremity of the point. North-northeastward of Plati Point is a chain of hills, and Kennedy Bluff, one of these hills 800 yards from Plati Point, is a conspicuous, well-defined, cliffy bluff, 193 feet high. A range beacon, painted white, is located on Kennedy Bluff, and a range beacon, painted white, stands on the shore 458 yards 073° from the beacon on Kennedy Bluff. A beacon painted white stands on the shore 400 yards southward of the beacon on Kennedy Bluff.

Plati Bank, which is shallow and rocky, extends one-half of a mile from the northwestern shore between Plati Point and St. Helena Spit, located one-half of a mile north-eastward. Its southeastern extremity, distant 200 yards from Hook Point on the southeastern shore, dries in places, and this extremity is marked by a light buoy and a white beacon. A light buoy is moored about 375 yards northeastward of Hook Point.

10-38 Agia Pandeimon (Ayios Pandeimon) Point projects eastward from the northwestern shore in a position one-half of a mile north-northeastward of St. Helena Spit. Depths of less than 3 fathoms extend 400 yards southeastward from this point, and for another 400 yards in the same direction the depths are less than 5 fathoms.

Agia Pandeimon Bay is the name given to the remainder of the entrance channel eastward of Agia Pandeimon Point, where it widens out to a maximum width of 1 mile. It affords good anchorage to large vessels in a depth of 13 to 9 fathoms.

Erimonisi, a rocky islet 25 feet high, is located in the northern part of Agia Pandeimon Bay. This islet is fringed by rocks

above and below water, and depths of less than 3 fathoms extend nearly 300 yards westward from its northwestern part and 300 yards southeastward from its southeastern extremity. A detached rocky shoal with a least depth of $2\frac{3}{4}$ fathoms lies in the middle of the channel eastward of the islet, limiting the use of this channel to vessels drawing less than 16 feet; the channel westward of the islet has depths of more than 8 fathoms.

Range beacons.—The front range beacon, painted white, is located on the eastern part of Erimonisi, and the rear range beacon, painted white, is located 1583 yards 024° from the front range beacon.

These beacons in range lead from a position about 500 yards northeastward of Hook Point to a position about 550 yards northwestward of Paghia Argaria.

10-39 Apotheka (Apothikai Parakoilon) Bay, the northern recess of Agia Pandelemon Bay, has general depths of 6 to 4 fathoms, the 3-fathom curve being 100 yards offshore in places. A shoal with depths of less than 3 fathoms and a sunken rock near its extremity extends 250 yards eastward from Apotheka Point, the western entrance point. Apotheka (Apothikai), a small settlement with three small landing piers, is located on the western side of this bay; this settlement is the port for the inland town of Agra. In 1944 it was reported that the middle pier was damaged and that the southern one was submerged. Small vessels can anchor off this settlement, but the holding ground is not good. As this bay is fronted by the islet of Erimonisi, vessels should pass westward of this islet, taking care to avoid the shoal extending westward from the islet, eastward from Apotheka Point, and especially that extending southeastward from Agia Pandelemon Point.

Lena Point, located 800 yards eastward of the islet of Erimonisi, is the northeastern limit of the northwestern side of the entrance channel, after which the gulf proper opens out. The fairway of the entrance channel is 300 yards wide between the 5-fathom curve located 300 yards southward of Lena Point to the north and the 5-fathom

curve located 200 yards north of Perama Point to the south.

10-40 Directions.—The entrance channel leading to Port Kalloni presents navigational difficulties in its southwestern part, where the fairway, although deep, has a minimum width of 70 yards in one place. Along the shores are conspicuous marks and ranges which determine the courses to be steered. At night entry into Port Kalloni should be considered dangerous or even impossible, because it is not possible to estimate with accuracy the distance from the points along the southeastern shore of the entrance channel. The same can be said for limited visibility.

Vessels can pass either north or east of Kalloni Islet. Only small vessels can use the channel eastward of the islet, as this channel has a least depth of $3\frac{3}{4}$ fathoms in its northern part. Small vessels using the channel eastward of the islet should pass midway between the southeastern extremity of Kalloni Islet and the mainland to the eastward on a course of 356° by keeping Kennedy Bluff in range with the beacon located 400 yards southward of it. Near the end of this course vessels must make a difficult and large turn of 71° in order to be heading on a course of 067° in the main fairway.

Large vessels can pass only north of Kalloni Islet. On a course of 067° , pass about 150 yards northwestward of Kalloni Islet and Vromousa Point and 120 yards northwestward of Hook Point in range with the beacons described in section 10-35. Immediately after passing Hook Point and the beacon on Plati Bank to the northward, steer a course of 056° for a distance of about 400 yards in range with the beacons described in section 10-36, and then steer a course of 024° in range with the beacons described in section 10-38. When Perama Point bears about 088° , steer a course of 073° keeping the range beacon on Kennedy Bluff in range astern (253°) with the range beacon on the shore 458 yards 073° from it, described in section 10-37. Having passed Perama Point, which should be given a berth or 360 yards, set course for selected destination in the gulf.

10-41 SOUTHEASTERN, NORTHERN, AND WESTERN SIDES OF PORT KAL-LONI—Southeastern shore.—Nephitha Bay ($39^{\circ}05' N.$, $26^{\circ}08' E.$, *H. O. Chart 4221*), about 1 mile wide in its entrance open to the north, indents the shore in a southerly direction immediately eastward of Perama Point. Depths of less than 3 fathoms extend 200 yards from the shore of this bay, and depths of 3 fathoms extend as far as 800 yards northward from Sinemaneli Point, the eastern entrance point of the bay. At the head of this bay is the small settlement of Nephitha.

Khabka (Skala Polikhnitos), a small settlement located 1 mile east-northeastward of Sinemaneli Point, is the landing place for the inland town of Polikhnitos, the second largest on the island of Mityleni and the center of an agricultural district. At Khabka are several factories with conspicuous chimneys. A light is shown at Khabka.

From Khabka the shore with shallow depths extending offshore for a short distance trends $1\frac{3}{4}$ miles north-northeastward to Glaro Point, and along this shore are some salt pans. At Glaro Point the shore turns and trends 1,800 yards east-northeastward of Sekamudi (Sikamoudi) Point, from which depths of less than 3 fathoms extend 600 yards in a westerly direction. A detached rocky patch with a depth of $2\frac{3}{4}$ fathoms lies three-fourths of a mile northeastward of Sekamudi Point and one-half of a mile offshore. Alkudia (Alkoudhia) Bay, which is shallow and full of rocks, is a small bight indenting the shore southward of this detached patch. Agia Pavlos (Ayios Pavlos) Point, located 1 mile northeastward of Alaga Point, the eastern limit of Alkudia Bay, has depths of less than 3 fathoms extending 600 yards northward from it, and similar depths extend nearly the same distance from the shore trending eastward from Agia Pavlos Point.

10-42 Beara (Pirra) Hill, located $1\frac{3}{4}$

miles east-northeastward of Agia Pavlos Point, is a well-defined plateau, 253 feet high, near the summit of which stands a conspicuous white house. Aklatheri (Akh-ladheri) Farm, a conspicuous small settlement, is located one-half of a mile westward of Beara Hill, and immediately eastward of this settlement is Beara (Pirra) Bay, a small bight with depths of less than 3 fathoms. A patch of rocks above and below water lies 200 yards northward of the settlement.

Kakovuno Point, the termination of a conspicuous high promontory extending 400 yards northwestward from the general trend of the shore, is located three-fourths of a mile northward of Beara Hill. Close northward of Beara Hill the Vuvuri River discharges by several mouths. The 3-fathom curve is as far as 400 yards off the shore just northward of the Vuvuri River, but is less than 100 yards off the cliffs that form the sides of the promontory of Kakovuno.

Arkuthi (Arkoudhi) Rock, 10 feet high, lies 400 yards westward of Kakovuno Point. Shoal water with rocks extends less than 100 yards from this rock, and between this shoal water and that extending from the promontory of Kakovuno Point is a fairway with a width of 300 yards and depths of $3\frac{1}{2}$ fathoms.

10-43 Limni Bay, located immediately eastward of Kakovuno Point, is a small bay receding southward for a short distance and having general depths of 3 to 2 fathoms. A rock with a depth of 5 feet over it lies in the northern approach in a position 500 yards northeastward of Kakovuno Point. Being sheltered against all winds from north-east, through east, to southwest and having good holding ground, Limni Bay affords the best anchorage in the gulf to small vessels. A mooring buoy is located in the bay.

10-44 The northern shore of Port Kal-loni has no irregularities, and in most places the 3-fathom curve is as far as 600 yards

offshore. Inland of the eastern part of this shore is an extensive salt bed. Although vessels can anchor almost anywhere in the gulf, large vessels usually anchor in $4\frac{1}{4}$ fathoms, sand, good holding ground, in the vicinity of the landing pier located a short distance eastward of the salt bed.

Agelia Skala (Ayia Anna), located about midway along the northern shore of the gulf, is a small settlement, which is the landing place for the inland town of Kalloni. The town is an agricultural center. Two vertical lights are shown from the head of a small pier extending southward from the town.

10-45 The western shore of Port Kalloni is somewhat irregular. The 3-fathom curve in most places is 300 yards offshore, but a shoal spit having at its extremity a rock with less than 6 feet of water over it extends nearly 600 yards eastward from Dephnudi (Dafnoudhi) Point, located $1\frac{1}{4}$ miles northward of the entrance channel into the gulf.

Parakela (Parakoila) Bay, located about midway along the western side of Port Kalloni, has on its shore the small settlement of Parakela Skala, which is the landing place for the inland town of Parakela (Parakoila), having a population of about 1,300.

10-46 SOUTHWESTERN SIDE OF MITYLENI ISLAND (continued)—Coast (H.O. Chart 4188).—From Port Kalloni the coast trends $5\frac{1}{2}$ miles west-northwestward to Cape Brisa (Kopanosi), a prominent cliffy point. A shallow spit extends a short distance southward from the cape, and on the southeastern part of the spit is a rock above water. A patch of rocks below water lies one-half of a mile eastward of the cape and one-fourth of a mile offshore. As these dangers are steep-to, vessels should give the cape a berth of not less than one-half of a mile.

The coast between Cape Brisa and Cape

Sigri, 8 miles northwestward, is cliffy and backed by high land. There are some beaches along this part of the coast, and the depths about one-fourth of a mile offshore are considerable.

10-47 Brisa (Eressos) Bay, the slight bight formed between Cape Brisa and Cape Erisos (Eressos), $2\frac{3}{4}$ miles northwestward, has along the middle part of its shore the small settlement of Skala Eressos, which is the landing place for the inland town of Eressos, an agricultural center. The shore in front of the settlement is mostly a beach fronted by an islet, and immediately eastward of the houses rises a hill, 134 feet high, with the ruins of a fort on its summit. About 800 yards southeastward of the settlement is a small promontory having cliffs on its western side, and near this promontory are rocks, one of which is 20 feet high.

10-48 Anchorages.—During strong northerly or northeasterly winds vessels will find good temporary anchorage in depths of 10 to 7 fathoms off Skala Eressos. The 5-fathom curve is about 500 yards offshore, and 200 yards farther out the depths increase to 22 fathoms or more. A wreck is located 500 yards westward of the islet fronting Skala Eressos.

Temporary anchorage during northerly or northeasterly winds is also available off the beach located $2\frac{1}{4}$ miles east-southeastward of Cape Sigri. Vessels intending to use this anchorage should ascertain the depths by sounding, and anchor in a depth of 14 fathoms. The depths in this locality increase suddenly, being 20 fathoms about 140 yards seaward of those of 14 fathoms.

Both of the above-mentioned anchorages are open to the south. Vessels should leave either of these anchorages when the northerly or northeasterly wind abates.

10-49 WESTERN SIDE OF MITYLENI ISLAND.—Cape Sigri ($39^{\circ}11' N.$, $25^{\circ}50' E.$, *H. O. Chart 4225*), the westernmost extremity of Mityleni Island and the southern limit of the approach to Port Sigri, is a steep clifly projection, 174 feet high. This cape is conspicuous from southward because of its abrupt termination, but from westward it blends with the high land and is not readily distinguished. The cape has been undermined by the sea, and at its northwestern extremity is the debris of fallen cliffs.

10-50 Coast—Islet.—Lafri Bay, a small bay indenting the eastern part of the northern side of the projection terminating in Cape Sigri, is open to the north. This bay is shallow and full of rocks, but a small area in its entrance has depths of 5 to 3 fathoms.

Kato Limena, the bay located immediately northeastward of that of Lafri, is open to the west. The 3-fathom curve is 200 yards off the sandy beach at the head. A detached rocky patch with a depth of $1\frac{3}{4}$ fathoms lies in the entrance in a position about 300 yards north-northwestward of the precipitous point separating this bay from that of Lafri.

Ano Limena, the next bay northward of Kato Limena, from which it is separated by a short peninsula, has depths of 9 to 5 fathoms. The northern entrance point, which is also the eastern entrance point of the southern entrance to Port Sigri, has rocks at the surface of the water extending nearly 300 yards southward and south-southwestward from it, and a detached rock with 1 foot of water over it lies about 250 yards west-southwestward of this same point.

Phanae (Skordho) (Nisis Fanes), an islet 25 feet high, lies on and 200 yards within the extremity of a shoal with depths of less than 3 fathoms that extends 600 yards west-northwestward from the short peninsula separating Kato Limena from Ano Limena. Rocks above and below water lie a short distance off this islet.

10-51 Sigri Island, the southern extremity of which is located 1 mile northward of Cape Sigri, shelters Port Sigri from the west. This narrow island extends $1\frac{1}{2}$ miles in a general north and south direction, has a maximum width of 600 yards, and attains a height of 206 feet in its southern half. The western coast of this island is almost entirely composed of white cliffs, which make easy the recognition of the island. Shallow depths and rocks, some above water, extend a short distance from all sides of the island, but from the middle part of the eastern side they extend in the form of a rocky spit as far as 450 yards offshore. A detached 6-fathom patch, rock, lies about 800 yards northward of the lighthouse and 450 yards offshore.

10-52 Sigri Island Light is located on the most projecting part of the western coast of the island. Some buildings stand near the lighthouse.

Sidusa (Sedhousa) Islet, which is 141 feet high at its northwestern part, lies in the western approach to Port Sigri in a position 1,600 yards west-southwestward of the southern extremity of Sigri Island. Shallow depths with rocks above and below water surround the islet, and they extend as far as 500 yards northward and 550 yards east-southeastward from it. A small detached patch of $2\frac{3}{4}$ fathoms lies about 500 yards south-southwestward of the summit of this islet.

10-53 Port Sigri ($39^{\circ}13' N.$, $25^{\circ}51' E.$, *H. O. Chart 4225*), the roadstead formed between Sigri Island and the western coast of Mityleni Island, is a useful harbor of refuge for sailing vessels bound to or from Istanbul and experiencing contrary winds. Extending $1\frac{1}{4}$ miles in a north and south direction,

this roadstead has depths of 16 to 11 fathoms in its southern part and depths of 11 to 6 fathoms in its northern part. Besides the dangerous rocky spit extending from the middle part of the eastern side of Sigri Island, another spit with depths of less than 5 fathoms extends 600 yards southward from the northern shore of the roadstead; in other places the 3-fathom curve is about 200 yards offshore. The town of Sigri, together with an old fort, is located on a small peninsula projecting from the southern part of the eastern shore.

10-54 Anchorage.—The best berth in Port Sigri for a large vessel is in a depth of 14 to 12 fathoms with the fort at the western end of the town bearing 107° , distant 500 yards. Anchorage in depths of 9 to 7 fathoms is available farther northward of this berth, but the area here is more restricted on account of two spits.

Small vessels can anchor either southward or northward of the town. The southern berth is in the middle of the bay just southward of the town in depths of $5\frac{1}{2}$ to $4\frac{1}{2}$ fathoms, while the northern berth is in a depth of $4\frac{1}{2}$ fathoms about 300 yards north-northeastward of the northwestern extremity of the peninsula on which stands the town.

Vessels with light anchors are liable to drag unless the anchors are imbedded in mud. A British naval vessel reported that the holding ground in Port Sigri was exceptionally poor.

10-55 Directions.—Vessels enter Port Sigri by the deep southern entrance. Sidusa Islet, located in the approach, can be easily recognized from a distance by its great height and conical shape. In order to avoid the dangers that extend some distance

from this rocky islet, vessels coming from the southward should round Cape Sigri at a distance of 600 yards, while those coming from the north should pass 500 yards off the west-southwestern coast and the southern extremity of Sigri Island.

The northern entrance into Port Sigri should be used only by craft having local knowledge. Rocks and shallows extend from both its sides, leaving a narrow and intricate fairway with a depth of $2\frac{3}{4}$ fathoms.

10-56 Sigri (Sigrion), located on the eastern side of Port Sigri, has a population of about 750. During the summer there is nearly always a fresh northeasterly wind, which makes the climate most enjoyable. A moderate supply of coal is kept in stock at the northern end of the port, and on the eastern shore in a position about 600 yards northward of the town is a watering place. The town has custom, postal, and telephonic facilities. Coastal steamers make regular calls.

10-57 Coast (*H.O. Chart 4188*).—From Port Sigri the remainder of the western coast of Mityleni Island trends $5\frac{1}{2}$ miles north-northeastward to Ordymno Point. The depths about 500 yards offshore are considerable, but vessels should not approach this coast, especially its salient points. Cape Elaia is the point about three-fourths of a mile north-northeastward of the northern entrance to Port Sigri, and immediately northward of this cape is the wide bay of Panayia Faneromeni, open to the west.

Mt. Ordymnos (Ordhimnos), located $3\frac{1}{2}$ miles inland along this part of the coast, rises to a height of 1,780 feet and has a monastery on its summit. This mountain is a good mark for approaching Port Sigri. When seen from the southward, it has a peaked appearance

10-58 NORTHWESTERN SIDE OF MITYLENI ISLAND.—Ordymno (Ordhimnos) Point ($39^{\circ}18' N.$, $25^{\circ}56' E.$, *H. O. Chart 4188*), the western limit of this side of the island, is fringed by rocks and should be given a wide berth. In the eastern part of the small bay immediately westward of the point is Ayios Ioannis Islet, which, as well as the western entrance point of the bay, is fringed by rocks. The western part of this small bay has depths of 8 fathoms in the inner part.

Temporary anchorage.—During strong southwesterly winds temporary anchorage can be obtained in depths of 12 to 10 fathoms in the area south-southeastward of Ordymno Point. As this area is open to northerly and easterly winds and the holding ground is poor, vessels that have taken refuge here should leave immediately when the wind has moderated or shows signs that it may shift from the southwest quarter. In this region southwesterly winds shift abruptly to the north, from which direction they blow violently.

10-59 Coast—Islet and rocks.—Telonia Point, a sharp point projecting in a northerly direction, is located $2\frac{1}{2}$ miles east-southeastward of Ordymno Point; the intervening coast between them recedes slightly southward to form a bay, in the western part of which is the above-mentioned temporary anchorage. Immediately east of this point is a small cove.

Merminga (Mirminghamia) Rock, above water, lies close northeastward of Telonia Point. About 700 yards east-southeastward of Merminga Rock and 400 yards off the eastern entrance of the small cove is another rock above water. Both of these rocks are fringed by shoal water, which extends some distance north-northeastward from the last-mentioned rock.

Gavatha Point, located $1\frac{1}{2}$ miles east-northeastward of Telonia Point, has a rocky spit extending 400 yards northward from it. Immediately east of Gavatha Point is the

small bay of Andissa, where is located the small settlement of Gavatha, the landing place for the inland town of Telonia (Andissa).

Gavatha Rock, a small rocky islet, lies 1 mile northeastward of Gavatha Point and one-half of a mile offshore. It is located at the northern end of a small detached reef with a depth of 8 fathoms. A light is shown from this islet.

Petra Islet is located 7 miles east-northeastward of Gavatha Point and one-half of a mile offshore. A sunken rock lies close off the northwestern part of the islet, and 400 yards northward of the northern end of the islet lies a detached $2\frac{1}{2}$ -fathom rocky shoal. On the southern side of the passage separating the islet from Mityleni Island are two rocks above water. The fairway between the southwestern rock and the islet has a depth of 10 fathoms, and the northeastern rock is on a rocky shoal extending 800 yards from the southern shore of the passage.

10-60 Petra, a town of about 1,500 inhabitants, is located $1\frac{1}{4}$ miles eastward of Petra Islet. The shore in front of this town commences to trend northward, and at Kavaki Point, three-fourths of a mile northward of the town, is being constructed a breakwater. This town has the usual custom, postal, and telegraphic facilities, and coastal steamers call. A large concrete jetty extends about 250 feet seaward from the center of the village.

Anchorage.—Good anchorage has been obtained off the town in a depth of 16 fathoms with the northern limit of Petra Islet bearing 276° .

10-61 Cape Molivo (Akr Moliudhos) ($39^{\circ}22' N.$, $26^{\circ}11' E.$, *plan on H.O. Chart 4188*), located $2\frac{1}{2}$ miles northward of the town of Petra, is the eastern limit of the northwestern side of Mityleni Island, as well as the southwestern limit of Muselim Channel. This irregular and rocky promontory terminates in two short spurs, one directed toward the northwest and the other toward the west. The cape is fringed by rocks. An old Fortress, on the hill above the town of Molivo, is reported to be an excellent landmark.

The coast eastward of Cape Molivo is described with Muselim Channel.

10-62 A light is exhibited from a white iron tower located about three-fourths of a mile east-northeastward of the northwestern spur of Cape Molivo.

A light is shown at the head of a bay, near the town of Molivo.

A dangerous wreck lies about 500 yards southeastward of the above light.

10-63 Molivo Road, open to the southwest, is the area immediately south of the western spur of Cape Molivo. During easterly winds temporary anchorage is available in depths of 20 to 10 fathoms sand, good holding ground, about one-fourth of a mile southward of the artificial harbor for small caiques. The depths increase rapidly seaward. During the summer the wind blows generally from northward and eastward and causes a troublesome sea.

10-64 Molivo (Mithimna), the town standing on the eastern shore of Molivo Road and having a castle among its buildings, has about 2,500 inhabitants. Olives, grain, and vegetables are grown in the neighborhood. The town has custom, postal, and telephonic facilities, and is a stopping place for coastal steamers. Several small lighters are available.

10-65 **MUSELIM CHANNEL** (*western entrance, 39°25' N., 26°08' E., H. O. Chart 4188*), separating the northern coast of Mityleni Island from the coast of Turkey, leads eastward to the Gulf of Adramyti, for which it is the principal exit to the Aegean Sea, and southward into Mityleni Channel. The channel has a minimum width of $4\frac{1}{4}$ miles in its western part. Shallow depths extend only a short distance from the shores, and farther off the depths are great. Muselim Rock, together with two other shoals in its vicinity, constitutes a grave danger in the

middle of the channel; another shoal lies off the eastern part of the southern shore.

10-66 SOUTHERN SIDE OF MUSELIM

CHANNEL—Muselim Rock, awash, and surmounted by a pile showing a yellow flag, lies in the middle of Muselim Channel in a position $4\frac{3}{4}$ miles northeastward of Cape Molivo. A 3-fathom shoal lies about 750 yards northward of the rock, and one-half of a mile 154° from this rock lies a 27 foot shoal. All three of these dangers are steep-to. Vessels, especially those with a deep draft, are advised to pass northward of them by keeping 1 to $1\frac{1}{2}$ miles off the coast of Turkey.

10-67 **Coast.**—From Cape Molivo, the southwestern limit of the channel, the northern coast of Mityleni Island trends 8 miles in a general easterly direction to Cape Skammia, the southeastern limit of the channel. A narrow rocky shoal with depths of less than 5 fathoms borders the coast in a position 2 to 3 miles eastward of Cape Molivo, but elsewhere deep water is found near the coast. About $2\frac{1}{2}$ miles inland of the western part of this coast rises Mt. Lepethymnus (Lebetimnos), 3,176 feet high. Anchorage is not available along this side of the channel, but during the summer temporary delay is possible in the bay immediately eastward of the promontory of Cape Molivo.

On the coast 2 miles westward of Cape Skammia is the small settlement of Sikania, the landing place for the inland town of Skammia (Sikania). Not far westward of Skammia is the town of Chelika (Khalikas).

10-68 **Cape Skammia (Korakas)**, the southeastern limit of Muselim Channel, as well as the northernmost point of Mityleni Island, has 200 yards northeastward of it a rock with a depth of less than 6 feet. The

cape should be given a berth of one-half of a mile.

The coast southward from Cape Skammia is described with Mityleni Channel.

A light is exhibited from a white iron tower standing on Cape Skammia.

Shoal.—A detached $4\frac{1}{2}$ -fathom shoal lies $2\frac{1}{4}$ miles west-northwestward of Cape Skammia and $1\frac{1}{4}$ miles offshore.

10-69 NORTHERN SIDE OF MUSELIM CHANNEL.—Cape Baba (Baba Burun) ($39^{\circ}29'$ N., $26^{\circ}05'$ E., *H.O. Chart 4188*), the northwest limit of Muselim Channel, is a high and bold headland, the western termination of mountainous land, which, 4 miles eastward, rises to 1,394 feet. Depths less than 5 fathoms extend a short distance from the cape. On the cape are a village and a fort.

When a vessel is approaching from the northward, the cape appears to slope almost perpendicularly to the sea, but this appearance is lost when Lodos Point, 3 miles east-southeastward of the cape, becomes open. Lodos Point is not as high as Cape Baba and has a more gradual slope.

The coast northward from Cape Baba is described in section 10-72.

A light is exhibited from an iron column with a concrete base on Cape Baba.

Sivriji Point (Sivrice Burnu) is located $8\frac{1}{2}$ miles eastward of Cape Baba, and the depths along the intervening coast are considerable at a distance of one-half of a mile offshore.

A light is shown on Sivriji Point.

10-70 Sivriji (Sivrice) Bay, entered westward of Sivriji Point, is $1\frac{1}{2}$ miles wide in its entrance, recedes nearly three-fourths of a mile northward, and has charted depths of 28 to 8 fathoms. The shore of this bay is clear of dangers, but an ancient mole, which appears like a reef, extends a short distance from the eastern shore. When entering this bay from the eastward, or leaving it for that direction, a vessel should not bring the lighthouse on Sivriji Point to bear less than 311° until she is past the shoals eastward of this lighthouse.

10-71 Prohibited landing.—Landing is prohibited on the coast of Turkey between Sivriji Point and a position about 2 miles northwestward of Cape Ibriji, in the Gulf of Xeros, and this regulation also applies to the islands of Tenedos, Rabbit, and Imbros.

Within the limits of this volume, Seddul Bahr (sec. 10-198) is the only place where landing is permitted for the purpose of visiting the cemeteries in the vicinity.

10-72 Coast—Shoals.—The area off that part of the coast trending $1\frac{1}{2}$ miles northeastward from Sivriji Point is full of shoals, and in this area lies the wreck of an iron vessel. The outermost of these shoals is a 3-fathom patch, steep-to, lying 1 mile eastward of the lighthouse.

About 4 miles east-northeastward of Sivriji Point is a slightly projecting point, from which a shoal extends seaward for a distance of 300 yards. Between this last-mentioned point and Katagar Point, 2 miles farther eastward, the coast is indented by a slight bight, at the head of which are the remains of an ancient mole, and inland of this bight is the village of Behram, together with the ruins of Assos.

Katagar Point (Kadirga Burnu), a rather low and distinctive point considered to be the northeastern limit of Muselim Channel, is the northern entrance point of the Gulf of Adramyti (sec. 10-107).

10-73 MITYLENI (MITILINI) CHANNEL (*southern entrance*, $38^{\circ}59'$ N., $26^{\circ}43'$ E., *H. O. Chart 4188*).—This deep channel, which separates the eastern coast of the large island of Mityleni from the coast of Turkey, has a length of about 30 miles in a general north-northwesterly and south-southeasterly direction and an average width of 8 miles throughout the greater part of its length. The islands on both sides at the northern end of the channel contract the width to $3\frac{1}{2}$ miles, and here on the eastern side of the fairway is the only detached danger (Eleos Rock). The channel is easy to navigate, being well lighted at night. Vessels generally keep to the western side, as the eastern coast of Mityleni Island is

clear of dangers at a distance of 1 mile offshore except for the islands at the northern end of the channel.

10-74 WESTERN SIDE OF MITYLENI CHANNEL—Coast (*H. O. Chart 4222*).—From Cape Zeitin (Malea), described in section 10-18, the eastern coast of Mityleni Island trends 6 miles north-northwestward to Mityleni Harbor. This bold coast should not be approached too closely; depths of $2\frac{3}{4}$ fathoms extend as far as one-fourth of a mile offshore in places between Cape Zeitin and a position one-half of a mile southward of Mityleni Harbor. It was reported in 1945 that further shoaling had taken place in this vicinity and that the water fringing the coast was discolored. Located along this part of the coast from south to north are the villages of Pligionion, Varia, and Aklidhou.

Two radio masts are located on the coast in a position about $3\frac{1}{2}$ miles south-southeastward of the town of Mityleni.

10-75 Mityleni (Mitilini) (Mytilini) Harbor ($39^{\circ}06' N.$, $26^{\circ}35' E.$, *H. O. Chart 4222*), consisting of two small ports or basins and an outer anchorage, is easily identified by the city, part of which is built on a peninsula extending one-half of a mile in an easterly direction. On the northeastern part of this peninsula stands a conspicuous fort. The cemetery chapel, a white building with a tower, about $\frac{1}{4}$ mile southward of the town, is conspicuous to vessels approaching the anchorages; a conspicuous cathedral stands on the isthmus between North and South Ports. Two conspicuous cupolas stand about 225 yards northward and 550 yards northwestward, respectively, of the cathedral. The 5-fathom curve is as far as 200 yards off the northern shore and 300 yards off the eastern shore of this peninsula.

10-76 Ports.—North Port, the small basin on the northern side of the peninsula, is partly sheltered from the east by a breakwater that extends 400 yards in a northwesterly direction from the northern corner of the fort. Some of the boulders that make up this breakwater are under water. At the outer extremity of the breakwater stands

a pillar, 15 feet high, surrounded by shoal water and having not far northward of it a rock awash. The western side of the entrance is formed by a mole, awash, extending 100 yards in an east-northeasterly direction, and the width of the entrance between its extremity and the pillar on the breakwater is 350 yards but only 200 yards in the fairway. The harbor has depths of more than 3 fathoms as far as 300 yards southwestward from the entrance, but the remainder of the harbor is shallow and foul, especially the southeastern part where there is a stranded wreck. Two small wooden landing piers project respectively from the northern and southern ends of the quayed western shore. This port has been abandoned and is now used only by a few small fishing vessels.

South Port, located on the southern side of the peninsula, and frequented by small vessels, has an outer basin and a much smaller inner basin. The following depths are reported (1966): 24 $\frac{1}{2}$ feet in entrance to inner basin, 23 $\frac{1}{2}$ to 25 $\frac{1}{4}$ feet in the central basin, 16 $\frac{1}{2}$ feet at the Eastern Quays, and 14 $\frac{3}{4}$ feet at the Western and Northern Quays. The outer basin is sheltered from the east by a breakwater which extends southward from the southeastern extremity of the peninsula for about 700 yards. A conspicuous granite monument, 50 feet high, stands near the root of this breakwater. Vessels cannot safely berth alongside the breakwater; large rocks protrude as much as 10 yards on either side. The inner basin, the sides of which are quayed, has a length of 400 yards in a north-south direction, a width of 300 yards, and has general depths of 18 to 24 feet. Outside the harbor proper, a quay extends southwestward from the root of the breakwater; the charted depths off the quay are from 6 to 9 feet. All large vessels are required to anchor outside the breakwater.

10-77 Mityleni Point Light is exhibited from an iron framework pylon atop the roof of

a dwelling located just eastward of the citadel on the northeastern extremity of the peninsula.

A light is exhibited on both sides of the narrow entrance to the inner basin of South Port. Each light is exhibited from a mast on a white house with a red roof.

A light buoy, exhibiting a flashing green light, is moored close south-southwestward of the head of the breakwater at South Port. Vessels must pass southward of this light buoy which marks the southern limit of the underwater extension of the breakwater.

10-78 Anchorage.—Large merchant vessels can lie within the shelter of the breakwater with two anchors down and stern lines to the breakwater. There is just room for one large merchant vessel to swing at anchor in 6-7 fathoms in the shelter of the breakwater.

There is anchorage in the roadstead 400 yards east of the end of the breakwater in 10 fathoms, with good holding ground of sand and mud. This berth is exposed to strong southerly winds.

South Port is well protected from the weather; even working by lighter from the outer basin is never hindered.

Mityleni Harbor, as well as Kabakum Bay, is used by sailing vessels when unable to work up towards İzmir Körfezi.

Pilotage is not compulsory but advisable. Pilots board vessels outside the outer harbor, and, if notified in advance, will take in vessels at night.

10-79 MITYLENI (MITILINI) (MYTILINI) (*39° 06' N., 26° 34' E., H. O. Chart 4222*), the capital of Mityleni (Lesvos) Island, is a city of about 25,518 inhabitants (1961).

Berths.—The inner harbor of South Port provides 2,800 feet of berthing space in depths up to 24 feet. Lighters are available for handling cargo, and the port has a 6-ton floating crane, a 5-ton mobil crane, and a 3 1/2-ton crane.

Repairs.—Minor repairs can be effected.

Supplies.—Provisions are available in limited quantities and variety. Water, limited in quantity, is piped to the principal quays; however, water is not available by barge. Fuel oil and diesel oil are stocked and a small tanker, with a capacity of 600 tons, is available.

Communications.—The city has custom, postal, telephone, and telegraph facilities. Coastal steamers make regular calls, and the city is a stopping place for an air line. Main inland roads connect the port with Plomariou, Polyhinikos, Molybos, Aglassos, Kaloni, Antissa, and Ag Paraskevi.

Hospital.—There is a hospital with 250 beds.

10-80 Coast.—Asphali (Kara Tepe) Point (*39° 08' N., 26° 33' E., H. O. Chart 4222*) is located 1 1/4 miles northward of Mityleni Harbor, and the intervening coast is indented by two small shallow coves. Just westward of the promontory terminating to the north in Asphali Point is a small bay with depths of less than 3 fathoms in its inner part and less than 5 fathoms as far as one-half of a mile offshore. At the northwestern part of this bay is the village of Panayioudha, and farther northward is the much smaller settlement of Kalamiaris.

10-81 Baftah (Makhaira) Point (*39° 10' N., 26° 33' E., H. O. Chart 4188*), located 1 3/4 miles north-northwestward of Asphali Point, is the eastern termination of a large headland. About three-fourths of a mile south-southwestward of Baftah Point is the small rocky islet of Pamfilon, separated from the coast to the west by a narrow passage with a least depth of 1 fathom; elsewhere the islet is steep-to. The small area northward of the islet has depths of 7 to 3 fathoms and is the port for the town of Pamfilla. The oil-storage depot at Pamfilla has a pier with a depth of 15 feet at its head. The best anchorage, sheltered only from westerly winds, is in 10 fathoms

about 300 yards northeastward of the islet. It has been reported that vessels anchor here to await the pilot for Mityleni Harbor.

From Baftah Point the coast trends $3\frac{1}{2}$ miles northwestward to Mestegna Cove and also recedes slightly to form a bight. The 5-fathom curve in this bight is as far as 500 yards offshore, and at the head of the bight are sunken ancient harbor works. Located in the northern part of the bight and separated from the coast by a passage with a width of one-half of a mile and depths of 5 to $3\frac{1}{4}$ fathoms is the small rocky islet of Kidonia (Kidhonia), which has depths of less than 3 fathoms extending a short distance southward from it. The small settlement on the shore of this bight is the landing place for the inland town of Sarliji (Thermi), an agricultural center.

Mestegna (Mistegna) Cove, which is small and recedes for a distance of one-half of a mile, has depths of $5\frac{1}{2}$ fathoms in its entrance and northern part and $4\frac{1}{4}$ to $3\frac{3}{4}$ fathoms in its southern part. At this cove is the landing place for the inland town of Mestegna. From Mestegna Cove the coast trends $4\frac{1}{2}$ miles northwestward to the southern limit of Makri Bay, and about midway along this coast is a small point, close northward of which lies a small rocky islet.

10-82 Makri (Makris Yialos) Bay, having a width of $4\frac{1}{2}$ miles in its entrance, has suitable depths for anchorage. The Tomari Islets, a description of which follows, lie in the northeastern part of this bay. Lismoni (Erimo), a small rocky islet, lies one-half of a mile northward of the southern limit of the bay. Shallow depths extend 300 yards southwestward from this islet, but the remainder of the passage between this shoal water and the shore has depths of 12 to 8 fathoms. Aspropotamos, the settlement at the head of Makri Bay, is the landing place for the inland town of Mandamadhos.

10-83 Cape Tomari (Tokmak) ($39^{\circ}20'$ N., $26^{\circ}26'$ E., *H. O. Chart 4188*), the northern limit of Makri Bay, is a cliffy headland. A rocky spit with depths of $2\frac{1}{2}$ fathoms extend one-half of a mile eastward from the southern part of this headland. Immediately southwest of the headland is the small cove of Palaio Liman, which has rocks above and below water extending one-half of a mile east-northeastward from its southern entrance point.

10-84 Tomari (Tokmakia) Islets, a group of four islets, lie from $1\frac{1}{4}$ to $2\frac{1}{2}$ miles southward of Cape Tomari. The northwesternmost and largest islet, 190 feet high, is separated from the coast to the westward by a passage with a width of 1,200 yards. In the northwestern part of this passage are the rocks above and below water extending one-half of a mile east-northeastward from Palaio Liman, but the eastern part has depths of 12 fathoms except for a rock above water close off the islet. A large rock above water lies 500 yards west-southwestward of the southern extremity of the islet, from which it is separated by depths of 10 fathoms.

The northeasternmost islet, 98 feet high, lies close off the northeastern part of the northwesternmost islet, from which it is separated by deep water. Rocks lie close off the northwestern extremity of this islet.

Aspri Islet, 98 feet high, lies 500 yards southward of the northwesternmost islet, from which it is separated by depths of 11 to 9 fathoms. This islet has white cliffs on its northern side. The southernmost islet of the group lies close south-southwestward of Aspri Islet, and surrounding both of these two islets is an area with depths of less than 5 fathoms.

Danger.—A rock, the depth over which is not known, lies in Makri Bay in a position 1,800 yards west-southwestward of the southernmost islet of the Tomari group.

10-85 Coast.—Between Cape Tomari and Phéro (Feros) Point, located $3\frac{3}{4}$ miles northwestward, the coast recedes westward to form a bay, which is clear of dangers and has deep water near its shores. Monopetra, a very low islet bordered by shoal water, lies in the northwestern part of the bay, and the channel separating it from Phero Point has depths of 20 to 16 fathoms. At the head of the bay is the small port of Yeni Liman (Neos Limin).

Between Phero Point and Cape Skammia (sec. 10-68), located $1\frac{1}{2}$ miles northwestward, the coast again recedes slightly to form a bight, which is clear of dangers.

10-86 EASTERN SIDE OF MITYLENI CHANNEL—Coast *H. O. Chart 4188*.—From Cape Mal-tepeh (sec. 10-11), the southeastern limit of Mityleni Channel, as well as the northern entrance point of Çandarlı Körfezi, the coast trends $2\frac{1}{2}$ miles northward to the southern end of South Channel, one of the entrances to Bademli Limanı (Port Ajano). This stretch of the coast is irregular, broken, steep-to, and clear of dangers.

10-87 Baston Adalari (Cane or Ajano Islands) ($39^{\circ}00'N.$, $26^{\circ}48'E.$), two narrow islands joined at their northern end by depths of 4 to 2 feet, lie in the southwestern approach to Bademli Limani.

Garip Ada, the western and outer island, extends three-fourths of a mile in a north and south direction. The western coast of this island is clear of dangers at a distance of 100 yards offshore.

A shoal with a depth of about $4\frac{1}{4}$ fathoms over it is located about 600 yards north-northeastward of the northern tip of the island.

Kalbur Ada (Kalem Adasi) (Makro Nisi), the eastern and inner island, is 157 feet high and extends 1 mile in a north and south direction. A rocky shoal extends 150 yards southward from the southern end of the island. A shoal, with a depth of $4\frac{1}{2}$ fathoms

lies about 150 yards northwestward of the southwestern extremity of the island. Between the island and the mainland to the eastward is South Channel, leading northward to Bademli Limani. Both shores of this very narrow channel are fringed by shallow depths, and depths in the fairway are 10 to 5 fathoms, except near its northern end where there are less than 5 fathoms. It was reported (1947) that South Channel is closed as a result of an earthquake. The town of Ilica (Aluja), close southward of which are some ancient ruins and hot springs, is located on the eastern side of the southern part of South Channel.

10-88 Nikolo Rock (Guvercin Kayasi), a patch of three rocks above water, lies 1,200 yards northward of Garip Ada and the same distance off the coast to the eastward. Shoal depths extend 500 yards eastward from these rocks, and 600 yards east-northeastward of these same rocks lies a detached shoal with a least depth of $3\frac{1}{2}$ fathoms. Shoal areas with depths of 4 fathoms are located on both sides of the channel, east of Nikolo Rock.

A light is shown on shore about 1 mile eastward of Nikolo Rock.

10-89 Bademli Limanı (Port Ajano), located just northward of the Baston Adalari, is a narrow inlet receding 1 mile in a northeasterly direction. The inner half is very shallow, but the outer half has depths of 6 to 5 fathoms in an area extending 800 yards in a northeast and southwest direction and having a width of 200 yards. A depth of 5 fathoms is located in the middle of the outer part.

North Channel, which leads to the inlet from the west, is entered between Baston Adalari and Nikolo Rock. A depth of $4\frac{1}{8}$ fathoms is located in this channel, about $\frac{1}{4}$ mile 310° from the northeast end of Kalbur Ada.

Between the depths of less than 3 fathoms extending northward from Kalbur Ada, the inner island, and the similar depths extend-

ing southwestward and southward from the northern entrance point of the inlet, the fairway is reduced to a width of 150 yards and has here a least depth of $3\frac{1}{4}$ fathoms. South Channel has been described with Kalbur Ada.

10-90 Kabakum Bay ($39^{\circ}05' N.$, $26^{\circ}50' E.$, *H. O. Chart 4188*), entered between Ovreo Kastro (Çift Kale), located $1\frac{3}{4}$ miles north-northeastward of the entrance to Bademli Limanı, and a point $7\frac{1}{2}$ miles north-northwestward of Ovreo Kastro, recedes eastward as far as 4 miles in its southern part. This bay affords anchorage in depths of 20 to 8 fathoms, sheltered from southerly and easterly winds. The holding ground is rock with a layer of sand over it. This bay, as well as Mityleni Harbor, is used by sailing vessels when unable to work up towards İzmir Körfezi.

Dikili, the town located at the head of Kabakum Bay, is conspicuous from seaward. A vessel anchored 600 yards off the loading pier in a depth of $6\frac{1}{2}$ fathoms, sand, good holding ground. Cargo is handled by lighters, and vessels calling here must show a bill of health. The town has telegraphic communication.

10-91 Suna Point (Kurbaga Burnu), a narrow sandy tongue, projects in a northwesterly direction from the coast in a position 3 miles northwestward of the northern entrance point of Kabakum Bay. Along the intervening coast between the bay and the point depths of less than 5 fathoms extend as far as $1\frac{1}{4}$ miles offshore. In 1916 and again in 1941 it was reported that Suna Point extended considerably farther westward than it is indicated on the chart.

10-92 Suna Bay (Tath Su Körfezi), entered between Suna Point and Tuz Burnu,

6 miles northwestward, affords anchorage in depths of 18 to 8 fathoms, mud, sheltered from northerly and easterly winds. Depths of less than 5 fathoms extend from $\frac{1}{2}$ to 1 mile farther offshore than indicated on the chart. In 1946 it was reported that shoals exist in Suna Bay northeastward of a line drawn 315° from Suna Point. A $3\frac{1}{4}$ -fathom shoal lies 1 mile southwestward of Aspro Point (Ak Burun), a point located at the inner end of the northern shore and having a small hill on it.

Ayasmata Bay (Altunova Limanı) is the name of that part of Suna Bay just northward of Suna Point. The outer part of Ayasmata Bay has depths of 4 fathoms, and the inner part is shallow. About 2 miles northeastward of this bay is the village of Ayasmata (Altunova).

10-98 Tuz (Sarmisak) Burnu ($39^{\circ}16' N.$, $26^{\circ}37' E.$), the northwestern limit of Suna Bay, is the southwestern extremity of a hilly peninsula. This cape is composed of whitish cliffs, the only ones in the vicinity.

10-94 MOSKO ISLANDS.—This group lying on the southern side of the entrance to the Gulf of Adramyti and also forming the eastern side of the northernmost part of Mityleni Channel consists of about 20 islands that occupy an area extending 8 miles in a north and south direction and $11\frac{1}{2}$ miles in an east and west direction. In the southeastern part of this group is Aivali Bay (Ayvalık Limanı), a landlocked harbor. Several other anchorages are available in this group, but the only guide for reaching them is the chart, because the area is full of sunken dangers.

Eleos Island (Günes Adası) ($39^{\circ}20' N.$, $26^{\circ}32' E.$), $4\frac{1}{4}$ miles northwestward of Tuz Burnu is, together with Eleos Pulo, the westernmost of

the Mosko Islands. Between Eleos Island and the Tomari Islands to the westward is the narrowest part of Mityleni Channel, the width here being about $3\frac{1}{2}$ miles. The island is fringed by shallow depths, which extend as far as 200 yards from the northwestern point of the island. Eleos Pulo (Yumurta Ada), which is cliffy and has a rocky shoal extending 200 yards westward from it, lies close southwestward of Eleos Island. A detached rocky shoal with a least depth of $5\frac{1}{4}$ fathoms lies $\frac{1}{4}$ mile westward of Eleos Island.

A light is shown from a white tripod on the summit of Eleos Island.

A light is shown on Eleos Pulo.

Eleos Rock, over which the depth is 3 fathoms, lies 1,800 yards southward of the southern extremity of Eleos Island. This rock is the shallowest part of a small bank with depths of less than 10 fathoms.

10-95 Gymno Island (Çıplak Ada or Sarmısak Ada), the southernmost of the Mosko Islands, lies one-half of a mile north-westward of Tuz Burnu. Having the shape of a boot with its toe pointing southwestward, this island extends $1\frac{3}{4}$ miles in a north and south direction and attains a height of 174 feet in its middle part. The island is fringed by shoal water, which extends as far as 600 yards offshore in places, but Ali Burnu, the easternmost point of the island, is moderately steep-to.

The channel separating Gymno Island from the mainland to the eastward has a minimum width of 800 yards, and shoal water extends from both shores. Abreast of Ali Burnu the fairway has its least width of 400 yards and its least depth of $9\frac{1}{4}$ fathoms. The current generally sets strongly northward through this channel.

A light is shown from a white tripod, 16 feet high, adjacent to the southeastern corner of a white house standing on Ali Burnu. The house has a red roof.

Caledonia Shoal, which has a least depth of $2\frac{3}{4}$ fathoms, lies 1,400 yards northward of the northern end of Gymno Island.

10-96 Anchorage.—Good sheltered anchorage can be obtained in a depth of 16 to 15 fathoms, soft mud, in the northern half of the channel separating Gymno Island from the mainland. This anchorage area extends as far northward as Taliani Pass, but here vessels are exposed to winds from seaward.

10-97 Mosko Island (Cunda, Mis, or Ali-bey Adası), the largest and most irregular of the Mosko Islands, consists of a northern and a southern part joined by a narrow neck of land having a length of $1\frac{1}{2}$ miles. The southern part, which rises to a height of 614 feet in its center, forms the northern shore of Taliani Pass and Aivali Bay. The northern part, extending $3\frac{1}{4}$ miles in an east and west direction, has a hill at each end, the one at the western end being 489 feet high.

Numerous islands, islets, and dangers lie both westward and eastward of this irregular island. Vessels navigating in the vicinity of Mosko Island or bound for Aivali Bay must depend on the chart.

10-98 Islands and dangers off western side of Mosko Island—Anchorages.—Mosko Pulo (Adacık) and Leiah Island (Poyraz Adası), located 400 yards northwestward, are two islands located on a shallow flat extending $1\frac{1}{4}$ miles westward from the western coast of the southern part of Mosko Island.

Kalamo Island, a narrow island extending 1,200 yards in a north and south direction, lies 1,600 yards westward of Mosko Pulo. Kalamo Pulo (Yuvarlak Ada) lies one-half of a mile west-northwestward of the southern end of Kalamo Island, and the channel between them is encumbered with rocky shoals, one of which has a rock above water. The channel westward of Kalamo Pulo is deep and clear of dangers in midchannel.

Mosko Road, the area open to the southwest between the southern side of Mosko Pulo and the western side of Mosko Island, affords limited anchorage in depths of 13 to 11 fathoms, mud. Two shoals, each with a least depth of $2\frac{3}{4}$ fathoms, lie respectively 900 yards west-southwestward and 800 yards south-southwestward of Kosta Point, which is the southeast limit of Mosko Road, as well as the northern entrance point of the western end of Taliani Pass, described with Aivali Bay.

Anchorage is available in depths of 11 to 8 fathoms, mud, in the area limited to the east by Mosko Pulo, to the north by Leiah Island, and to the west by Kalamo Island.

Pyrgo Island (Maden Adası), 295 feet high, lies close off the western extremity of the northern part of Mosko Island, to which it is joined by shoal water. These two islands form between them Poroselenes Bay, open to the south. Some islets and shoals, the position and extent of which can best be seen on the chart, lie in the approach to this bay.

Adiavatos Islet (Küçük Maden Adası) lies immediately westward of Pyrgo Island and is connected to it by a causeway.

10-99 Alpheios Shoal ($39^{\circ}25'N.$, $26^{\circ}41'E.$), a rocky patch with a least depth of $3\frac{1}{2}$ fathoms, lies 2 miles northward of Mavromati Point (Deve Boynu Burnu), the northeastern extremity of Mosko Island. This off-lying shoal is the northernmost danger of the Mosko Islands.

10-100 Islands and dangers eastward of Mosko Island—Anchorages.—Numerous islands and dangers lie as far as 5 miles eastward of Mosko Island. Two of these islands afford anchorages, but the position and extent of the remainder can best be seen on the chart.

Khudhu Island (Keçi Adası) lies $1\frac{1}{2}$ miles southeastward of Mavromati Point. A $3\frac{1}{2}$ -fathom rocky patch lies 600 yards southwestward of the southern extremity of this island. During strong east-northeast-

erly winds vessels can anchor in the lee of this island in a depth of 9 to 6 fathoms, soft mud. Care must be taken to avoid the $3\frac{1}{2}$ -fathom rocky patch.

Sephiri Island (Yassı Ada) lies on a shallow bank that extends 1 mile east-northeastward from the middle part of the western shore of a bay indenting the northeastern part of the southern part of Mosko Island. Anchorage is available 600 yards southward of the church on Sephiri Island in a depth of 8 to 5 fathoms, clay. This anchorage is exposed to east-northeasterly winds, which blow out of the Gulf of Adramyti.

10-101 Aivali Bay (Ayvakh Limani) ($39^{\circ}19'N.$, $26^{\circ}41'E.$), a landlocked harbor between the eastern part of the southern coast of Mosko Island to the north and the deeply indented mainland to the south, extends 4 miles in a northeasterly and southwesterly direction with an irregular shoreline and has a maximum width of $1\frac{1}{2}$ miles. The depths in the central part are 6 to $5\frac{1}{2}$ fathoms, decreasing gradually toward the northeastern and southwestern ends of the bay. Two passes, one from the west and the other from the north, lead into the bay.

10-102 Taliani Pass (Dalyan Boğazı), the channel leading into the bay from the west, has a length of more than 1 mile. The fairway has been dredged to a depth of 16 feet and is only 40 yards wide at the bottom, which is composed both of rock and sand. The eastern end of the channel passes northward of St. Ioannis Islet. There is a perceptible tidal current.

Having passed 800 yards northward of Gymno Island, vessels should steer a course toward the light structure at the western end of Taliani Pass, when within 750 yards of the light, a course should be altered to pass southward of the light structure, and then altered as necessary for transiting the pass.

10-103 Buoys.—Two buoys are located near the outer entrance to Taliani Pass; a red conical buoy on the northern side and a red cylindrical buoy on the southern side.

10-104 Lights.—A light is exhibited from a white concrete block at the western end of the northern side of the fairway through Taliani Pass. Eastward of this light the fairway is marked by six lights, three on the northern side and three on the southern side.

A light is shown at Rowley Point on the southern side of the entrance to Taliani Pass.

10-105 Nesos Pass (Dolap Boğazı), the northern entrance channel to Aivali Bay, passes between the eastern coast of the southeastern part of Mosko Island on the west and Krommido Island (Soğan Adası) on the east. Krommido Island is connected to the mainland southeastward of it by a causeway. This very narrow channel with a least depth of 11 feet is marked by a beacon. The beacon stands on a small islet at the northern end of the channel. The fairway passes westward and close southward of this beacon.

Anchorage.—Anchorage is available one-third of a mile off the town of Aivali, located on the eastern shore of the bay. The holding ground is good.

Tides.—The high-water interval at full and change is 3h. 55m. Springs rise $1\frac{3}{4}$ feet.

10-106 Aivali (Ayvalık) had an estimated population of 13,088 in 1935. The town is thought to be in a much-decayed state on account of the exodus of the Greek inhabitants. The principal industry is the making of olive oil.

The village of Mosko (Alibey), located on the northern shore of the bay, is the summer residence for the inhabitants of Aivali.

The town has a customhouse pier, where vessels with a draft of 12 to 10 feet can come alongside. Lighters are available for handling cargo. Provisions are plentiful, but the drinking water, reported to be good, has to be shipped in. The town has telegraphic service, and coastal steamers call.

10-107 GULF OF ADRAMYTI (EDREMIT KÖRFEZİ) (entrance, $39^{\circ}26' N.$, $26^{\circ}29' E.$, *H.O. Chart 4188*), which is 11 miles wide in its entrance between the Mosko Islands to the southeast and Katagar Point to the northwest, trends about $23\frac{1}{2}$ miles in an east-northeasterly direction. The northern shore of the gulf is closely backed by mountainous land, which attains an elevation of 5,797 feet in Mt. Ida (Kaz Dağ), located about 9 miles northward of the head of the gulf. Inland of the hilly land along the southeastern shore of the gulf are mountain ranges, and Mt. Sailejik (Yaylacık Dağ), located about 13 miles inland, rises to a height of 3,655 feet. At the head of the gulf is an extensive, rich, cultivated plain.

Anchorage is available at several small bays at the head of the Gulf of Adramyti.

10-108 SOUTHEASTERN SIDE OF THE GULF OF ADRAMYTI.—Cape Kara Tepeh (Boz Burun) ($39^{\circ}26' N.$, $26^{\circ}48' E.$, *H.O. Chart 4188*), located $6\frac{1}{2}$ miles east-northeastward of Mosko Island, is a rounded and bold headland, 266 feet high. This headland can be passed at a short distance. A light is shown from Cape Kara Tepeh.

10-109 Armudova Roadstead is the name given to the area off that part of the coast that trends $3\frac{1}{2}$ miles southward from Cape Kara Tepeh before turning southwestward toward Aivali Bay. Located at the southern end of this roadstead, and connected to the shore southward of it by shallow water, is Angistri Island (Çiçek Adası), the easternmost of the Mosko Islands. About 1 mile north-northeastward of this island is the center of a large shoal, which is reported to be covered only in winter. The shoal is marked on its eastern side by a black and red banded conical buoy having a ball topmark.

The landing place for the settlement of Gömeç, located $2\frac{1}{2}$ miles inland, can be rec-

ognized by a white house with a red roof; also on an elevation of the beach southward of this white house stands a yellow building among some trees. About $1\frac{1}{2}$ miles southwestward of these buildings is the settlement of Gümüşli, where there are two mills with high chimneys.

A vessel anchored in a depth of 12 fathoms, sand and mud, with Cape Kara Tepeh bearing 000° , distant 2 miles, and the above-mentioned white house bearing 130° , distant 875 yards from the shore. In 1939 a vessel anchored in a depth of 11 fathoms, mud, good holding ground with the northern point of Angistri Island bearing 286° , Cape Kara Tepeh bearing 014° , and an olive oil mill bearing 213° , distant 1,200 yards.

Dahlina Point (Bağlar Burnu) ($39^\circ 28' N.$, $26^\circ 53' E.$, *H. O. Chart 4188*) is located $3\frac{3}{4}$ miles northeastward of Cape Kara Tepeh, and the intervening shore recedes $1\frac{1}{2}$ miles southeastward to form a bay.

10-110 Kemer Bay.—From Dahlina Point the shore trends first 3 miles eastward and then $1\frac{1}{2}$ miles northward to form Kemer Bay, the southeastern part of the head of the Gulf of Adramyti. The southern shore is backed by a ridge culminating in an elevation of 902 feet. At the southeastern recess of this bay is the landing place for the inland town of Kemer (Bürhaniye). The Kara Dere flows into the sea on the eastern side of this bay, and one-half of a mile northward of its mouth is an ancient mole. A detached rock with a depth of less than 6 feet lies 1,300 yards southwestward of this mole.

The anchorage in Kemer Bay is poor, being open except from northeast, through east, to south.

10-111 NORTHERN SIDE OF THE GULF OF ADRAMYTI—Coast (*H. O. Chart*

4188).—From Katagar Point, the northern entrance point, the northern shore trends 22 miles east-northeastward to Kara Point, and is clear of dangers at a distance of more than 400 yards offshore. Located inland on the mountain slopes are several villages with factory chimneys; the principal ones are Chipneh (Çetmi), 11 miles east-northeastward of Katagar Point, Küçük Kuyu, 1 mile east-southeastward of Chipneh, Papazlı (Altınoluk), $7\frac{1}{2}$ miles east-northeastward of Chipneh, and Avjılar, 3 miles east-northeastward of Papazlı. Also in places are buildings, grouped together or isolated, near which are landing places for small craft trading with the mountain villages.

Kara Point is low, salient, and steep-to. The land near the shore for about 8 miles westward from Kara Point is thickly covered with olive trees. About midway between Kara Point and the low western limit of Ilija Bay, about $1\frac{1}{2}$ mile northeastward, discharges a small stream.

A light is shown from a white tower located on Kara Point.

10-112 Ilija (Ilıca) Bay, where there are some hot springs and baths and two factories, is sheltered by high ground from west, through north, to southeast. Anchorage is available in a depth of 9 fathoms, mud, about one-half of a mile offshore, or farther out if necessary. This bay has better holding ground than Axia Bay.

Good water can be obtained in any quantity from a clear stream that discharges into Ilija Bay. As the depth about 200 yards off the mouth is about 5 fathoms, vessels coming here expressly for water can anchor as near as convenient.

A short pier for small craft extends from the beach.

10-113 Axia Bay (Akçay Limanı), located 2 miles eastward of Ilija Bay, is the northeastern part of the head of the Gulf of Adramyti. Sheltered anchorage from northwest, through east, to south, is available in

depths of 17 to 7 fathoms, mud, the lesser depth being obtained about one-half of a mile offshore. In 1935 a vessel anchored in a depth of $5\frac{1}{2}$ to $4\frac{1}{4}$ fathoms about 300 yards southwestward of the eastern loading pier. A mooring buoy for small vessels is located in the bay.

10-114 Axia (Akçay), the small settlement at this bay, is the landing place for the town of Adramyti (Edremit), located $4\frac{1}{4}$ miles eastward. The village has two loading piers, 600 yards apart, the eastern one having a length of 60 feet and depths of 6 to 8 feet at its head. Between these piers and a vessel at anchor, lighters are pulled back and forth by means of lines. Custom and health officials come from Adramyti. Provisions are procurable, and water can be obtained from several streams discharging into the bay. Adramyti has a telegraph office, and local Turkish vessels call at Axia.

10-115 OUTLYING BANKS.—Spitfire Banks two in number, lie in the open waters of the Aegean Sea in a position about midway between Mityleni Island on the east and Skyros Island on the west. These banks are surrounded by depths of 100 to 300 fathoms, clay, and consist of sand, shells, and coral. The southern bank has a length of 15 miles in a northwest and southeast direction and an average width of 9 miles; on this bank are two heads—Brooker Bank (Ifalos Brouker), with a depth of 48 fathoms, in latitude $38^{\circ}52'$ N., longitude $25^{\circ}20'$ E.; and Stokes Bank (Ifalos Stok), with a depth of 45 fathoms, in latitude $38^{\circ}53'$ N., longitude $25^{\circ}25'$ E. Extending 19 miles in a northeast and southwest direction, and having an average width of 4 miles, the northern bank also has two heads—Mansell Bank, with a depth of 50 fathoms, in latitude $39^{\circ}13'$ N., longitude $25^{\circ}17'$ E.; and Johnston Bank (Ifalos Tzonston), with a depth of 21 fathoms, mud, in latitude $39^{\circ}18'$ N., longitude $25^{\circ}23'$ E. Soundings of 40 and 88 fathoms have been obtained $11\frac{1}{2}$ miles north-northwestward and northward of Brooker Bank, and a depth of 43 fathoms about 3 miles eastward of the same bank.

Numerous depths of from 74 to 98 fathoms have been found between a position $13\frac{1}{2}$ miles westward of Brooker Bank and a position about 10 miles farther west-southwestward.

10-116 Currents.—In September 1916 no current was experienced westward of

Spitfire Banks from a position eastward of Strati Island to a position 15 miles eastward of Skyros Island. A light south-southwesterly wind was blowing. Some days later in the same region the current set south-southwestward with a rate of 0.3 knot. There was a light southerly wind, which for the previous 24 hours had been moderate.

In November 1916 there was no current between Doro Channel and a position 20 miles east of Skyros Island. A light breeze from north-northwest was blowing.

In October 1916 a current was observed setting west-southwestward at a rate of nearly 1 knot between Strati Island and Lemnos Island. There was a moderate northerly breeze. During the same month a current of 0.3 knot was observed setting east of north between Lemnos Island and Psathura Island. There was a light northerly breeze, but the wind had been fresh from southwest for the previous 24 hours.

10-117 STRATI (AYIOS EVSTRATIOS) ISLAND (*northern extremity, $39^{\circ}33'$ N., $25^{\circ}00'$ E., plan on H. O. Chart 4157*), which belongs to Greece, is located 42 miles west-northwestward of Mityleni Island and 16 miles southward of Lemnos Island, from which it is separated by a deep channel clear of dangers. This mountainous and triangle-shaped island has a length of 6 miles in a north-south direction, a maximum width of $3\frac{1}{4}$ miles in its northern part, and a height of 973 feet in its northeastern part. Except at its northern and eastern extremities the island has no dangers lying more than 400 yards offshore. The island has some level areas, where grapes and vegetables are raised. The several hundred inhabitants live in the only village on the island. Vessels are prohibited from approaching Strati Island.

Cape Kalamaki, the northern extremity

of the island, has 250 yards northward of it the small rocky islet of Agios Apostoli (Ayioi Apostoloi), and between them is a reef. The depths are great close northward of this islet. A light is shown on Agios Apostoli.

10-118 Cape Thascoli (Thaskoli), the eastern extremity of the island, has rocks above and below water lying as far as 600 yards eastward of it. A detached rock with a depth of less than 6 feet lies 600 yards northeastward of the cape. Rubos (Roubos) Islet, small and rocky, lies one-half of a mile north-northeastward of the cape, and between the shallow water fringing this islet and the previously mentioned detached rock is a narrow channel with a depth of $4\frac{1}{2}$ fathoms. Depths of less than 5 fathoms extend nearly one-half of a mile northeastward from Rubos Islet. This bank is covered by the red sector of the light on Agios Apostoli on bearings between 294° and 312° .

10-119 A light is shown on Akra Tripiti, the southern extremity of Strati Island.

10-120 Agios Strati (Ayios Evstratios), the village where live all the inhabitants of the island, has custom and postal facilities. Coastal steamers call.

10-121 LEMNOS (LIMNOS) (*H. O. Chart 4126*), a large island belonging to Greece, lies in the northern part of the Aegean Sea in a position 16 miles northward of Strati Island and 34 miles westward of the Dardanelles. This very irregular island extends about 19 miles in an east and west direction and 15 miles in a north and south direction. Although the island is hilly, it does not have any great elevations, Mt. Skopia (Vigla), 1,410 feet high, being at the northwestern extremity of the island. Other peaks are Mount Therma, 1,130 feet high, in the south-western part of the island, and Mount Phako (Fakos), 1,019 feet high, on the western side of the outer part of Mudros Bay. Eb Hill, 617 feet high,

and Yrroc Hill, 675 feet high, lie 1 mile and $1\frac{1}{4}$ miles west-northwestward, respectively, of Kombi Point (sec.10-127). Purnea Bay, indenting the northern coast, and Mudros Bay, indenting the southern coast, almost divide the island into two parts, as the heads of these two bays are separated by a narrow neck of land. Dangers lie as far as 10 miles eastward of the northern part of the eastern coast of the island.

The island had about 26,000 inhabitants in 1948. Several thousand of them live in Kastro (Mirina), the capital, located on the western coast. The principal industry is agriculture; grain, olives, grapes, and tobacco are some of the products raised on the level areas between the hills, which have a rugged and barren appearance.

10-122 SOUTHERN SIDE OF LEMNOS.—Cape Irene (Ayia Irini) ($39^{\circ}47' N.$, $25^{\circ}22' E.$, *H. O. Chart 4126*), the southeastern extremity of the island of Lemnos, is much lower than the land within it. As this salient point is fringed by shoal water, it should be given a berth of 500 yards.

A stranded wreck lies about 1 mile westward of Cape Irene.

The coast northward of this cape is described in section 10-159.

10-123 MUDROS BAY (KOLPOS MOUDHROU) (entrance, $39^{\circ}48' N.$, $25^{\circ}16' E.$, *H. O. Chart 4159*), a large bay indenting the eastern part of the southern coast of the island of Lemnos, is considered to be one of the best anchorage places in the Aegean Sea. Capable of accommodating a large number of vessels, this bay was used as a naval base in two wars. Being about 3 miles wide in its entrance, the bay trends first 4 miles in a north-northwesterly direction and then 4 miles in a north-northeasterly direction. Mudros (Moudhros) Harbor is the name given to that part of the bay

trending in a north-northeasterly direction, and the entrance into this harbor is divided into three entrance channels by an island and a group of rocks above water.

As the outer half of Mudros Bay is open to the south, sheltered anchorage for a large number of vessels is available here only during the summer. The best and safest anchorage is in Mudros Harbor, especially in its southeastern part. The northern part of the harbor also affords good anchorage, but it is encumbered with scattered shoals.

10-124 Eastern side of Mudros Bay.—Cape Valanidhi (Velanidhia), located $2\frac{1}{2}$ miles west-northwestward of Cape Irene, is the eastern entrance point of Mudros Bay. It is much lower than Cape Irene. A reef with some rocks above water on its inner part extends 700 yards south-southwestward from this cape, and can generally be distinguished by the color of the water over it. To pass southward of the reef, keep Phako Point bearing 282° and well open southward of Kastras Islet.

The eastern shore of Mudros Bay presents nothing of interest to navigation. From Cape Valanidhi the shore trends 1 mile north-northwestward to Cape Skedi, the 5-fathom curve along this stretch being about 400 yards offshore. Between Cape Skedi and Cape Malathria, $1\frac{3}{4}$ miles north-northwestward, the shore recedes slightly eastward to form a large open bight, where the 5-fathom curve is 400 yards off the low eastern and northeastern shores but much closer in to the steep northern shore backed by high hills. Water can be obtained from the stream discharging at the head of this bight.

Between Cape Malathria and Delius Point, 800 yards north-northwestward, the shore is indented by a small cove having a depth of 5 fathoms in its entrance and considerably less in its inner part. Freshwater Bay, located just northward of Delius Point, is very shallow in its inner part, but anchorage is available northwestward of Delius Point, the distance off the head of Freshwater Bay being more than 500 yards. Vessels anchoring here must guard against fouling the telegraph cable laid off Freshwater Bay.

Buda Point (Aspros Kavos), located $1\frac{1}{2}$ miles northwestward of Freshwater Bay, is the southwestern extremity of a narrow peninsula having a height of 15 to 40 feet and extending 800 yards in a southwesterly direction. The 5-fathom curve is 100 yards westward of this point. Shoal Bay, eastward of this peninsula, has depths of less than 3 fathoms in its inner part. Shallows extend 300 yards from the southeastern limit of this bay, and from these shallows rise Bird Rocks, two rocks about 5 feet high.

10-125 Prohibited anchorage.—Anchorage is prohibited on a line indicated on the chart between Bird Rocks and the northern limit of Durham Cove, located on the western side of the bay in a position 2.1 miles west-southwestward of Bird Rocks. Vessels also must not anchor on the line indicated on the chart between Buda Point and Limni Point, $1\frac{1}{4}$ miles west-southwestward.

10-126 This section has been deleted.

10-127 Western side of Mudros Bay.—Kombi (Koumbi) Point, the western entrance point of the bay, is rocky and round-

ed. On this point rises Dawkins Hill, 282 feet high, with a 245-foot hill close eastward of it. Close off the southern side of the point are rocks above and below water, one being 10 feet high.

Kombi (Koumbi) Islet, a small rocky islet 177 feet high, is located 350 yards east-southeastward of Kombi Point, to which it is connected by a reef. Shoal water extends a short distance eastward and northward from this islet.

Foul ground is located about $\frac{1}{2}$ mile westward of the southern extremity of Kombi Islet in a position about 320 yards offshore.

10-128 A light is shown on the summit of Kombi Islet. Foul ground was reported about $\frac{1}{2}$ mile northeastward of the light.

Kastra (Kastri) Islet, cliffy and 140 feet high, is located 200 yards southward of Kombi Islet. This islet should be given a berth of 500 yards.

Limni Point, the termination of a narrow peninsula extending 650 yards in a northeasterly direction and having a height of 82 feet, is located $2\frac{1}{2}$ miles north-northwestward of Kombi Islet. The 10-fathom curve is as far as 500 yards off the intervening shore, which is uninhabited and backed by high hills; this curve decreases its distance to 200 yards off Limni Point. Limni Point is easy to recognize from a distance on account of its white color, the remainder of the peninsula having a reddish color.

10-129 Eastern side of the entrance to Mudros Harbor.—Sangrada (Sagradha) Point is located 800 yards northward of Buda Point, the southeastern limit of the entrance. Between these two points the shore recedes slightly to form a bight with depths of less than 3 fathoms and a patch of sunken rocks in its southern part. The 5-fathom curve is 200 yards westward of Sangrada Point.

10-130 A light is shown on Sangrada Point.

Black Rocks (Pondikonisia), a group of rocks above water, lie about midway between Sangrada Point and Alago Island, located 1

mile to the northwestward. The largest rock is 14 feet high. On the southern side of the group the 5-fathom curve approaches the largest rock to a distance of 150 yards; otherwise a rocky shoal extends 300 yards eastward, 400 yards westward, and 600 yards northward from the largest rock. A light buoy is moored about 400 yards southeastward of the largest rock. Good passage can be made to the eastward of this buoy.

Meganoros Point, the northeastern limit of the entrance, is located 800 yards northeastward of Sangrada Point. A 129-foot hill rises close southeastward of the point, and the shore immediately southward of the point consists of cliffs, 60 feet high. Depths of less than 3 fathoms extend 600 yards from the shore between Sangrada Point and Meganoros Point, and north of Meganoros Point these depths extend only 200 yards offshore.

10-131 Western side of the entrance to Mudros Harbor.—Between Limni Point, the southwestern limit of the entrance, and Vrulidhi Point, 1,800 yards northwestward, the western shore is indented by Tarrant Cove and Fuller Cove, separated by Stern Point, which has cliffy sides. Both of these coves have depths of less than 5 fathoms, and in Fuller Cove, the northwestern one, lie two rocky patches with depths of less than 6 feet, the outer one lying 200 yards northwestward of Stern Point. Rocks above water also lie as far as 200 yards eastward from the northwest limit of Fuller Cove. Some houses with a landing place stand at the eastern limit of Fuller Cove.

Vrulidhi (Vourlidhia) Point is the northern extremity of a peninsula extending one-half of a mile in a northerly direction. On this peninsula rises a conspicuous rocky hill, 91 feet high. Depths of less than 5 fathoms extend 400 yards northward and 500 yards eastward from Vrulidhi Point.

Vrulidhi (Vourlidhia) Bay, considerably larger than either Tarrant Cove or Fuller Cove, is located just westward of Vurulidhi Point. Having a width of one-half of a mile and receding three-fourths of a mile in a south-southwesterly direction, this bay affords good anchorage in 8 fathoms in the middle of its outer part. Blenheim Rocks, which break in a southerly gale, and a $2\frac{1}{4}$ -fathom rocky patch lie respectively 800 yards and 600 yards northward of Vurulidhi Point. The eastern approach with depths of 5 fathoms or more to the anchorage in the bay is reduced to a width of 100 yards between the $2\frac{1}{4}$ -fathom rocky patch and the depths of less than 5 fathoms extending northward from Vurulidhi Point.

10-132 Alago (Alogo) Island, located 1 mile northeastward of Vurulidhi Point, has a length of 1,400 yards in a northeasterly and southwesterly direction, an average width of 300 yards, and a maximum height of 80 feet in its northern part. This island has cliffs, 20 to 30 feet high, along the greater part of its coast. A ruined hut stands on a ridge about 400 yards from the northeastern extremity of the island. Depths of less than 5 fathoms extend from the island as far as 200 yards in places, and within these depths off the southeastern part of the island is a small islet.

Channel Rocks, a patch of rocks that break in a southerly gale, lie about midway between the southern end of Alago Island and the shore 1,600 yards to the westward. Depths of less than 3 fathoms extend about 200 yards eastward from these rocks, and similar depths cover the entire area westward from them.

A detached shoal with a least depth of

16 feet lies 600 yards eastward of Washington Point, which is due westward of the northern end of Alago Island. Depths of less than 3 fathoms extend nearly 400 yards eastward from Washington Point.

10-133 Kaloyeraki Point, located 800 yards northeastward of Alago Island, is the northwestern limit of the entrance to Mudros Harbor. It is the eastern termination of a narrow peninsula extending more than $1\frac{1}{4}$ miles in an easterly direction, and depths of less than 3 fathoms extend as far as 600 yards southward from the western half of this peninsula. A beacon stands on the summit of a 71-foot hill located just within Kaloyeraki Point.

Wynne Shoal, a $4\frac{3}{4}$ -fathom rocky patch, lies about midway between the southern extremity of Kaloyeraki Point and the northeastern extremity of Alago Island.

Kaloyeri Shoal, a rocky shoal with a least depth of 19 feet, lies about $\frac{1}{4}$ mile eastward of the southern extremity of Kaloyeraki Point.

10-134 Entrance channels to Mudros Harbor—Directions.—East Pass, the channel between Buda Point, Sangrada Point, and Meganoros Point on the east and Black Rocks on the west, has a fairway with a minimum width of 400 yards between the 5-fathom curve on either side and depths of more than 10 fathoms.

Vessels heading southward through East Pass should keep Yrroc Hill (sec. 10-121) ahead bearing $203\frac{1}{2}^{\circ}$; on this bearing both Yrroc Hill and Eb Hill (sec. 10-121) are conspicuous, the former being conical and the latter rounded. Vessels should pass southeastward of the light buoy (sec. 10-130) on the western side of the pass.

A foul area is located near the northern part of East Pass, the center of which is about 675 yards northwestward of Meganoros Point.

10-135 Middle Pass, the channel between Black Rocks on the east and Alago Island on the west, has a fairway with a width of 400 yards between the 5-fathom curve on either side and a least depth of $5\frac{3}{4}$ fathoms. Middle Pass is the recommended channel for entering the harbor, as it is easy to navigate by keeping 400 yards off the eastern coast of Alago Island.

Enter Mudros Bay about $\frac{3}{4}$ mile off the Kombi Islet light structure, steer 335° for the southern extremity of Alago Island. When Kaloyeraki Point beacon bears 018° alter course and head for the beacon until Sangrada light structure bears 133° . Then proceed northeastward to the recommended anchorage.

10-136 West Pass, the entrance channel between Alago Island on the east and the shore to the west, has a fairway with a minimum width of 450 yards between the 3-fathom curve at the southern end of Alago Island and the 3-fathom curve eastward of the Channel Rocks. Also between the southern end of Alago Island and the Channel Rocks is a bar with depths of 4 to $4\frac{1}{2}$ fathoms. West Pass is not recommended, but detailed directions for its navigation in case of necessity are given.

Should it be necessary to use West pass, steer for a position about 800 yards southwestward of the southwestern extremity of Alago Island and then bring the 70-foot hill, located $\frac{1}{2}$ mile westward of Kaloyeraki Point, to bear 023° and steer for it on that bearing, passing midway between Channel Rocks and

Alago Island. Remaining about 300 yards from the western and northern sides of Alago Island, alter course gradually eastward, and pass between Wynne Shoal and Kaloyeri Shoal (sec. 10-133).

10-137 Eastern, northern, and western sides of Mudros Harbor.—Euriance Cove, entered between Meganoros Point and Cape Pavlos, $1\frac{1}{4}$ miles northeastward, recedes over one-half of a mile in a southeasterly direction. The 5-fathom curve is 400 yards off the southern shore and 800 yards off the eastern shore of this cove. The low shore is backed in places by marshy land.

The harbor, which is that part of Euriance Cove northward of Main Pier, has in its central part depths of 13 to 14 feet, varied in many places by depths of 17 to 18 feet. A black and white barrel and a black and white conical buoy are moored about 142 and 220 yards westward, respectively, of the head of Main Pier. A red and white conical buoy is moored about 65 yards southwestward of the head of Main Pier. There is no definite approach channel and only vessels of not over 8-foot draft should use Main Pier; there are a number of patches with a least depth of 10 feet over them in approaching the Main Pier.

A light is shown from the head of Main Pier.

South of Main Pier the water is more shallow, depths of less than 9 feet being as far as 400 yards offshore.

A 109-foot hill is located within Cape Pavlos, and eastward of this hill is built the town of Mudros. In the town is a cathedral with two towers.

Ispatho Island, 34 feet high, is located

about one-half of a mile northward of Cape Pavlos. Very shallow depths extend 400 yards westward from this island, and 300 yards farther in the same direction is the 5-fathom curve. Some buildings and trees stand on this island, which is connected to the shore by a causeway.

Ormano Bay, located between Ispatho Island and Talikna Point, 1 mile northward, recedes three-fourths of a mile in an easterly direction. The inner part of this bay is shallow and has several sunken rocks in it.

A dangerous wreck lies about 1,250 yards southward of Talikna Point.

10-138 Talikna (Likna) Point, a sharp rocky point about 30 feet high, projects a short distance westward. The 3-fathom curve passes 200 yards westward of this point. The land in the vicinity of the point is hilly, and the hill about three-fourths of a mile northeastward has a height of 293 feet. Talikna (Likna), a village with several inhabitants, is located three-fourths of a mile northward of Talikna Point.

The northern shore of Mudros Harbor has a length of $1\frac{1}{2}$ miles between Talikna Point on the east and Escombe (Mayiroudhi) Point on the west. It is for the most part low and backed by marshy land watered by several streams. The 3-fathom curve is 600 yards offshore in places along this shore. A reef extends 300 yards southward from Escombe Point, and on this reef is a rock 3 feet high.

Blenheim Cove, which takes up the entire western side of Mudros Harbor, is $1\frac{1}{2}$ miles wide in its entrance between Escombe Point on the north and Kaloyeraki Point on the south, and recedes about 2 miles in a general westerly direction, the innermost part being a narrow inlet that dries in places. San Nikolo (Ayios Nikolaos) Islet, 21 feet high, is located on the southern side of the cove in a position 600 yards north-northwestward of Kaloyeraki Point. This islet is

surrounded by a reef that extends as far as 350 yards eastward from the islet, and on the reef near its eastern end is Anvil Rock, 13 feet high. Turk Islet, 26 feet high, located 500 yards westward of San Nikolo Islet, is connected to the shore southwestward of it by a bridge.

Sarpi is a village located midway and one-half of a mile inland along the northwestern shore of Blenheim Cove. It is served by a small quay located on the southwestern side of a small point and available only for small craft. About one-half of a mile west-southwestward of this quay is a narrow pier with a length of 240 feet; it is available only for small craft and serves the village of Koutala (Nea Koutalis). The village of Portianos (Portianou), which has a conspicuous church close northward of it, is located one-half of a mile westward of the head of Blenheim Cove.

10-139 Dangers in Mudros Harbor.—Nikolo Patches, having a least depth of 3 fathoms and general depths of $3\frac{3}{4}$ to 5 fathoms, lie as far as 1,300 yards northeastward of Kaloyeraki Point.

Between Nikolo Patches on the north and Kaloyeri Shoal (sec. 10-133) on the south lie two detached patches, a 5-fathom patch 450 yards east-southeastward and a $4\frac{3}{4}$ -fathom patch 600 yards east-northeastward of Kaloyeraki Point.

Cameron Shoal, an elongated shoal with a least depth of 31 feet, extends 700 yards in a north-northwesterly direction from a position one-half of a mile westward of Cape Pavlos. A detached $5\frac{1}{2}$ -fathom patch lies 1,300 yards west-southwestward of Cape Pavlos and 400 yards southward of Cameron Shoal.

Bailey Shoals, a group of detached patches with depths of 4 to 5 fathoms, lie from $\frac{1}{2}$ to $\frac{3}{4}$ of a mile westward of Ispatho Island.

Carmania Shoal, which has a least depth

of 25 feet, lies from 700 to 1,200 yards northwestward of Ispatho Island.

Middle Shoals, a large number of detached small patches with depths of $4\frac{1}{4}$ to 5 fathoms, lie nearly in the middle of the northern part of Mudros Harbor. In addition to Middle Shoals, other unnamed detached patches lie in the northern part of the harbor; their position can best be seen on the chart.

10-140 Anchorage.—Anchorage can be taken in any part of Mudros Harbor, but care must be taken to avoid the shoal areas already described. The bottom consists of sand and mud.

The most spacious anchorage area with depths of 10 to 6 fathoms is inside the triangle formed by Meganoros Point, the northeastern extremity of Alago Island, and Cape Pavlos.

Anchorage westward of Alago Island was not recommended by the British naval vessel that surveyed Mudros Bay in 1916, as the bottom, composed of mud over dead coral, was not considered to be good holding ground. Several years later another British naval vessel reported that many large merchant vessels were anchored in that area from March to November, and that none of them dragged their anchors during the northeasterly gales, which are common in this neighborhood.

The best holding ground is in Euriance Cove and Blenheim Cove. In the latter cove the mud westward of a line between San Nikolo Islet and Escombe Point is stiffer than that in any other part of the harbor.

10-141 MUDROS (MOUDHROS) ($39^{\circ}52' N., 25^{\circ}16' E.$, *H. O. Chart 4159*), the town located within Cape Pavlos, had a population of about 1,800 in 1948. During World War I this was an Allied Fleet

Base and during World War II it was occupied by Germany. During the latter period the harbor was being entirely reconstructed for military purposes but this was not completed, and general depths in the harbor are irregular due to uncompleted dredging. Although port facilities are meager they are the best in the Thracian Islands.

Piers.—The outer 210 feet of Main Pier is constructed of iron and timber, and along the northern side of this part the depths increase from 10 feet at the inshore end to 16 feet at the outer end. The over-all length of the pier is about 400 feet.

The wooden pier on the northern side of the harbor can be used by caiques drawing 6 to 7 feet.

Town Pier, Australian Pier, and Egyptian Pier are unserviceable.

Supplies.—Very limited quantities of water, but no means to transport it to ships, are available. Provisions in small quantities may be obtained.

Communications.—The town has postal, custom, and telegraphic facilities.

10-142 SOUTHERN SIDE OF LEMNOS (*continued*)—**Coast.** (*H. O. Chart 4126*).—Phako (Fakos) Point, a tongue of land projecting 400 yards in a southerly direction, is located 3 miles westward of the entrance to Mudros Bay, and the intervening coast backed by barren hills is fringed in places by sunken and above-water rocks lying close offshore. A shoal having a depth of 5 fathoms at its extremity and above-water rocks on its inner part extends 300 yards southward from the coast in a position 500 yards west-northwestward of Phako Point.

Cape Stavros, located $1\frac{1}{4}$ miles west-northwestward of Phako Point, is a narrow headland extending one-half of a mile in a north-south direction and connected to the coast by a narrow neck of land. Immediately east of the cape is a small bay with a depth of 5 fathoms at its head and rocks above and below water at its entrance point.

Praso Islet, small and rocky, lies 500 yards west-northwestward of the northern end of Cape Stavros. This islet is fringed by a reef extending as far as 200 yards

northeastward and southwestward from it. The islet should be given a wide berth.

10-143 Port Kondia (Ormos Kondias) (*H. O. Chart 4157*), the bay entered $1\frac{1}{2}$ miles north-northeastward of Cape Stavros, recedes 2 miles in a northeasterly direction and has an average width of one-half of a mile. All the points projecting into the bay are foul; therefore vessels should keep a mid-channel course. The 3-fathom curve is as far as 300 yards off the sandy beach forming the northern side of the head of the bay.

The village of Skala Dhiapori has a conspicuous white customhouse with several other buildings and is located at the eastern end of the beach. It serves as the port for the inland village of Kondia, located three-fourths of a mile northward of the head of the bay. About 700 yards westward of the customhouse, is a conspicuous gray rock, 30 feet high, located on the western side of an entrance to a lagoon, and 500 yards farther westward is the mouth of a stream that flows through a cultivated plain. On the western side of the head of the bay is a small cove with two sandy beaches, and here are three very small piers for small craft only. A detached $1\frac{1}{2}$ -fathom patch lies 200 yards south-southeastward of the point forming the southern side of this cove.

Akr Lena, a low projecting point from which a light is shown, lies about $\frac{2}{3}$ mile south-southwestward of the conspicuous gray rock; the light is visible from 040 to 243.

The best sheltered anchorage in Port Kondia is in a depth of 9 fathoms, mud, with the customhouse bearing 065° , distant 900 yards. Small craft anchor closer to the customhouse, where the depths are less.

10-144 Ayios Pavlos Bay ($39^\circ 50' N.$, $25^\circ 07' E.$, *H. O. Chart 4126*), located immediately westward of Port Kondia, is $1\frac{3}{4}$ miles wide in its entrance between Cape Parania on the east and Cape Yuktash on the west, and recedes 1 mile in a northerly

direction. In the middle of this bay is a rock, rising 1 foot above the water, and extending 200 yards southward from this rock is shoal water with several rocks awash. The depths as far as 150 yards northeastward and northward from this 1-foot rock are less than 5 fathoms. To avoid this dangerous area when entering the bay, keep either 600 yards off the eastern shore or 400 yards off the western shore. A headland with shoal depths extending 200 yards southwestward from it projects 500 yards in a southwesterly direction from the northeastern part of the bay. The 3-fathom curve is 300 yards off the northern shore of the bay.

Cape Yuktash (Aspros Kavos) is the eastern extremity of a narrow and conspicuous peninsula that trends first 800 yards in a southerly direction and then 500 yards in an easterly direction. This peninsula forms a small shallow cove with rocks in its entrance.

Ayios Pavlos Bay affords temporary anchorage during northerly winds to small vessels in a depth of $6\frac{1}{2}$ fathoms, sand, in a position 700 yards northeastward of the 1-foot rock and the same distance west-northwestward of the headland at the northeastern part of the bay.

10-145 Tothanos (Thanos) Bay ($39^\circ 50' N.$, $25^\circ 04' E.$, *plan on H. O. Chart 4157*), the bay immediately westward of that of Ayios Pavlos, is nearly $1\frac{1}{2}$ miles wide in its entrance between the peninsula of Cape Yuktash on the east and Ropalo (Ropalon) Point on the west, and recedes one-half of a mile in a northerly direction. In the middle of this bay lies the small rocky islet of Tothanos (Thanos), dividing the bay into an eastern and a western part. Depths of 3 fathoms or less extend 500 yards southward from the northern shore of the western part, 150 yards southward from Tothanos Islet, and 400 yards southward from the northern shore of the eastern part. About midway between Tothanos Islet and the northern

shore is a narrow channel which is foul. Anchorage is available in 7 to 9 fathoms about $\frac{1}{4}$ mile eastward of Tothanos Islet. The small village of Tothanos (Thanos) is located one-half of a mile northward of the head of Tothanos Bay.

10-146 Cape Tigani.—The southwesternmost part of the island of Lemnos is an irregular peninsula having a width of one-half of a mile, extending $1\frac{1}{2}$ miles in a southwesterly direction, and attaining a height of 530 feet in Mt. Stivi, a rugged and conical hill. This peninsula terminates southward in two points, Ropalo Point, which is the western limit of Tothanos Bay, and an unnamed point farther westward. Between these two points is Stivi Bay, a small bay with depths of less than 3 fathoms. Cape Tigani is the name given to the southern extremity of a small islet lying close southward of the western unnamed point, and between the islet and the point are rocks above and below water. Stivi Rock, awash, lies 150 yards eastward of the islet.

Tigani Rock, a detached and steep-to rock with a depth of 3 feet over it, lies 400 yards southward of Cape Tigani. A vessel rounding Cape Tigani should give it a berth of one-half of a mile.

10-147 WESTERN SIDE OF LEMNOS.—The western coast of the island of Lemnos is indented by several small bays and backed by high hills.

Port Plati (Ormos Plati) ($39^{\circ}51' N.$, $25^{\circ}04' E.$, *plan on H. O. Chart 4157*), the entrance to which is between a point three-fourths of a mile northward of Cape Tigani and Cape Thevates, three-fourths of a mile farther northward, recedes nearly 1 mile in a general northeasterly direction. The inner part of this bay is a circular area with a diameter of 1,600 yards and depths of 9 to 3 fathoms. A reef extends 400 yards southeastward into the bay from Cape Thevates, and another reef lies 500 yards east-southeastward of the cape. Two separate

sunken rocks lie 250 yards off the southeastern shore of the circular area. The village of Plati is located one-fourth of a mile eastward of the head of the bay.

Local vessels prefer the anchorage in Port Plati to that in any other bay of the island of Lemnos. This bay affords shelter in all weather, and although the bay is open to the southwest, the sea from this direction is broken by the reef extending southeastward from Cape Thevates. The holding ground is mud. Cape Thevates should be rounded at a distance of 600 to 800 yards.

10-148 Cape Thevates (Dhiavates) is the southern extremity of a conspicuous and irregular headland, 174 feet high, connected to the mainland by a low and narrow neck of land. Shallows and rocks extend westward from this headland, and at the western extremity of these dangers are the two Thevates (Dhiavates) Islets, small and rocky.

Two rocky points, which are foul to a distance of 200 yards offshore, lie respectively 1,000 and 1,600 yards north-northeastward of the headland of Cape Thevates.

10-149 Limin Kastrou, located about 1 mile northward of Cape Thevates, consists of two small bays separated by a peninsula, 380 feet high, on which stands a castle. It is the port for the town of Mirina (Kastron), which is built at the base of the peninsula and extends along the heads of both bays. When bearing about 142° , the town is conspicuous and imposing. Also from the northwest, a church having a blue grey color and two towers becomes visible across the northern harbor. When a vessel is approaching from the southwestward, the white hospital on a slight elevation at the back of the town and the small white building of the harbormaster at the boat basin are visible. Sometimes during the winter vessels are unable to put into this port on account of the bad weather.

A light is shown from the western end of the castle.

Kastro Ledge, an isolated rocky shoal with an extent of 200 yards and a depth of 5 fathoms, lies about 1,800 yards west-north-westward of the western end of the peninsula at the port of Kastro.

10-150 Southern harbor.—The bay on the southern side of the peninsula is the principal harbor. It is about one-fourth of a mile in the entrance and recedes nearly one-half of a mile in an easterly direction. The 3-fathom curve is about 200 yards off the head of the bay, and at the northeastern part of the head is a small basin for boats.

A breakwater close westward of the boat basin extends about 210 yards southwestward from the shore. A light is shown from the breakwater head.

A light is shown at the entrance of the boat basin.

Shoals.—A shoal with a least depth of 2 3/4 fathoms lies in the entrance to the southern harbor in a position 400 yards south-southwestward of the southwestern extremity of the peninsula. To pass northward of the shoal, round the southwestern extremity of the peninsula at a distance of 200 yards. To pass southward of the shoal, steer 068° for the minaret near the boat basin.

A 3-fathom rocky shoal lies 200 yards off the middle of the northern shore of the southern harbor.

Anchorage.—The best berth in the southern harbor is between the two shoals in a depth of 10 fathoms, sand, with the southwestern extremity of the peninsula bearing 343°. As the holding ground is not good, a vessel must be prepared to proceed to sea at the first sign of westerly winds.

10-151 Northern harbor.—The bay northward of the peninsula is one-half of a

mile wide in its entrance and recedes about the same distance in an easterly direction. The 5-fathom curve is about 400 yards off the sandy beach at the head of the bay.

Shoal.—Petasi (Pelasi) Ledge, a detached 6-fathom patch, lies 500 yards northwestward of Cape Petasi (Pelasi), the northern entrance point of the northern harbor.

Submarine cables.—Several telegraph cables are landed at the southeastern recess of the northern harbor, and because of these cables vessels are prohibited from anchoring in the area as far as 600 yards off the southern shore.

10-152 MIRINA (KASTRON) (39°52' N., 25°04' E., *plan on H. O. Chart 4157*), the capital of the island of Lemnos, has a population of about 3,000. Provisions and water are procurable in limited quantities. Several lighters are available. A wharf, 485 feet long, will accommodate a vessel with a draft of 17 feet. The town has postal, custom, and telegraphic facilities. Coastal steamers call.

Repairs.—A drydock for small craft is available. Minor repairs are handled by a machine shop.

Hospital.—There is a 40-bed hospital.

Meteorological table.—See appendix II.

10-153 Coast (H. O. Chart 4126).—Between Cape Petasi, the northern limit of Limin Kastrou, and Kaloyeri (Kaloyeroi) Point, 2 3/4 miles northward, the western coast of the island of Lemnos is indented by Kaspakas Bay. The 3-fathom curve is as far as 500 yards off the northern part of the eastern shore. About one-half of a mile northeastward of Cape Petasi and close offshore are the two Skylax (Skiles) Rocks, above water, and depths not far seaward of them are great. A steep-to reef extends 500 yards westward from Kaloyeri Point and partly shelters from the west a small cove immediately northward of the point. Mt. Athanasi (Ayios Athanasios) rises to a height of 1,085 feet close inland along the southern part of Kaspakas Bay, and on its summit stands a small building. At the northern foothills of Mt. Athan-

asi is the village of Kaspakas. Good water can be obtained from the stream that discharges about one-half of a mile northward of Mt. Athanasi.

Cape Murtzephlos (Mourtzeflos), located 3 miles northward of Kaloyeri Point, is the northwestern extremity of the island of Lemnos. This cape is a high conical hill connected to the main part of the island by a low and narrow neck of land. Southward of the cape are yellow cliffs. Small craft can obtain shelter from northerly winds in the small and shallow cove on the southern side of the low neck of land.

A light is shown from Cape Murtzephlos.

10-154 NORTHERN SIDE OF LEMNOS.—Coast (*H. O. Chart 4126*).—Mt. Skopia (Vigla), 1,410 feet high, the highest peak on the island, is located 2 miles eastward of Cape Murtzephlos and one-half of a mile inland of the northern coast.

Siderites (Sidheritis) (Seryitsi) Islet, high and bold, is located $4\frac{3}{4}$ miles east-northeastward of Cape Murtzephlos and one-half of a mile northward of Cape Agrillia (Agrilios). The only dangers in the deep channel separating the islet from Cape Agrillia are a 3-fathom rocky patch lying 800 yards west-northwestward of the cape, and a $2\frac{1}{2}$ -fathom shoal located in the middle of the channel in a position about 700 yards south-southwestward of the southeastern extremity of the island.

Between Cape Agrillia and Cape Pharaklo (Faraklos), $4\frac{1}{2}$ miles eastward, the coast consists of cliffs and sandy bays. Port Gumatos (Ormos Gomati), the westernmost of the bays, is fronted to the north by a small rocky islet having a sunken rocky ledge extending 600 yards eastward from it. Port Gumatos has depths of less than 3 fathoms as far as 600 yards offshore and depths of 6 to 10 fathoms in the outer part. About 1 mile southwestward of the bay is the small village of Gumatos (Gomati).

Cape Pharaklo has shallow depths with rocks extending 200 yards northward from it.

10-155 Purnea Bay (Ormos Pournia) (*entrance, $40^{\circ}00'N.$, $25^{\circ}18'E.$*), entered between Cape Pharaklo on the west and Cape Soteri (Ayios Sotiras) on the east, which are 6 miles apart, recedes 4 miles in a southerly direction and gradually decreases in width. The distance across land from the head of this bay to that of Mudros Bay is only $2\frac{1}{4}$ miles, as these two bays nearly divide the island into two parts. Near the head of the bay are depths of 16 to 8 fathoms, where vessels can anchor but are exposed to northerly winds. The depths everywhere in the bay are over 5 fathoms at a distance of one-half of a mile offshore.

Between Cape Pharaklo and Cape Purnea (Pournia), $3\frac{3}{4}$ miles southeastward, the southwestern shore of the bay is indented by numerous small coves with shallow depths. About midway between these two capes is Tree (Dhendron) Point, an irregular point projecting three-fourths of a mile northeastward from the general trend of the shore and having a reef extending for another 400 yards northeastward from its extremity.

Cape Soteri, the eastern entrance point, is 251 feet high and cliffy. An ancient mole extends 400 yards southward from the western extremity of the cape, and depths of less than 5 fathoms extend 400 yards from the northeastern side of the cape. Vessels should not approach this cape too closely.

10-156 Port Ekato Kephales (Ekatom Kefales), located on the southeastern side of Purnea Bay in a position 3 miles southwestward of Cape Soteri, recedes three-fourths of a mile in an easterly direction and has depths of $4\frac{3}{4}$ to 2 fathoms. Having a

width of one-half of a mile, the entrance is encumbered by two rocky shoals, a $1\frac{3}{4}$ -fathom patch lying 600 yards south-southwestward and a $3\frac{1}{2}$ -fathom patch 1,000 yards west-southwestward of Cape Khloe (Khloi), the sharp northern entrance point. Cape Ekato Kephales (Ekaton Kefales) is the northwestern extremity of an irregular peninsula, 164 feet high, limiting this small bay to the southwest. Rocks above and below water extend as far as 400 yards from the western and northern sides of this peninsula. Between the northern side of this peninsula and the two shoals in the entrance is the main entrance fairway with a width of only 150 yards. Vessels able to use this small bay must navigate the fairway on an east-west course.

10-157 Port Purnea (Pournia), a semi-circular basin forming the head of Purnea Bay, extends $1\frac{1}{4}$ miles in an east and west direction and three-fourths of a mile in a north and south direction. A narrow spit with a least depth of 2 fathoms extends one-half of a mile westward from the eastern entrance point located 1 mile southwestward of Cape Ekato Kephales. The entrance fairway is only 300 yards wide between the extremity of this spit and Cape Purnea (Pournia), a long projecting point that shelters the western and shallow part of the bay from the north. The anchorage area about one-half of a mile in extent in all directions has depths of 7 to 4 fathoms, sand and mud, and is partly sheltered from the sea by the spit extending westward from the eastern entrance point. The small settlement of Pournia is located at the head of Port Purnea.

10-158 Cape Plaka ($40^{\circ}02' N.$, $25^{\circ}27' E.$, *H. O. Chart 4126*), the northeastern extremity of the island of Lemnos, is about $3\frac{1}{2}$ miles east-northeastward of Cape Soteri, the intervening coast being indented to a distance

of 1 mile by Ayios Kharalambos Bay, where the 5-fathom curve is from 400 to 900 yards offshore. This cape is a bold headland with a level top. A reef extends 600 yards northward and eastward from the cape.

Banks, with a depth of 14 and 15 fathoms, are located about $3\frac{1}{2}$ miles north-northeastward and 3 miles north-northwestward, respectively, of Cape Plaka.

Cape Plaka Light is exhibited from a white, round, masonry tower, 59 feet high.

Another light is exhibited in a lower position from this same tower.

10-159 EASTERN SIDE OF LEMNOS—Coast (*H. O. Chart 4126*).—Between Cape Irene (sec. 10-22) and Cape Sozo (Ayios Sozon), $1\frac{1}{2}$ miles north-northeastward, the coast is indented by a bay having shoal depths extending offshore for a considerable distance. This bay would afford temporary anchorage during a westerly gale. A vessel must take soundings and remain one-half of a mile offshore. Inland of the bay is the village of Skandhali. A conspicuous church stands on Cape Sozo.

Between Cape Sozo and Cape Voroskopos, 3 miles north-northeastward, is another bay having depths of less than 5 fathoms extending as far as 650 yards offshore. A dangerous rock awash lies 400 yards off the southwestern shore and fronts a small cove, where drinking water can be obtained. This bay, same as the one southward of it, affords temporary anchorage during a westerly gale. Westward of the northern part of this bay rises Mt. Parathis (Paradhisi), 859 feet high, and on Cape Voroskopos are the ruined buildings of an archaeological school.

Cavaliere (Kavallari) Point is located 2 miles north-northeastward of Cape Voroskopos, and between them is located a third bay with depths of less than 5 fathoms extending offshore as far as 800 yards. This bay also affords temporary anchorage dur-

ing westerly gales. Inland of the southwestern part of the bay is the village of Kaminia.

10-160 Port Kharos (Keros) located between Cavaliere Point and Kharos (Keros) Point, $1\frac{1}{2}$ miles northeastward, has depths of less than 4 fathoms extending one-half of a mile offshore. Rocky shoals extend as far as 1 mile southeastward from Kharos Point, and as similar shoals extend nearly one-half of a mile southward from the same point, only the southern part of the bay can be used for anchorage, which should be approached on a northwesterly course. Northwestward of Port Kharos is the inland village of Kondopulo (Kondopoulion).

From Kharos Point the coast trends 5 miles north-northeastward to Petza (Pet-sia) Point. This section of the coast is low, and close inland along the southern part is the large lagoon of Megali Limni (Aliki). It is from this part of the eastern coast of Lemnos that an extensive bank with depths of less than 10 fathoms extends 10 miles in an easterly direction. A description of the detached dangers on this bank follows the remainder of the coastal description.

From the coast 2 miles northward of Kharos Point a dangerous shallow spit extends $2\frac{1}{2}$ miles in a southeasterly direction and terminates in a reef, which breaks. Eastward from the reef for a distance of $1\frac{1}{2}$ miles are depths of less than 5 fathoms. Depths of 4 fathoms are found as far as 1 mile southeastward of Petza Point, which is fringed by shallower depths and rocks. A shoal, with a depth of $2\frac{3}{4}$ fathoms at its eastern end, lies between positions about 1 mile east-southeastward and three-fourths of a mile south-southeastward of Petza Point.

Vorio Kastro (Evraiokastros), a sharp and narrow point, is located 2 miles northward of Petza Point. Shoal depths extend one-half of a mile off the intervening coast, which becomes higher than that to the south of Petza Point. On a cliff of Vorio Kastro stands a ruin.

Plaka Bay, a small bay between Vorio Kastro on the south and the southern cliffs of Cape Plaka on the north, has shoal depths extending 650 yards offshore. To the interior of this bay is the village of Plaka. On the northern side of the base of Vorio Kastro is a small enclosed basin for boats.

10-161 Kharos (Keros) Bank is the name given to the extensive bank having depths of less than 10 fathoms and extending 10 miles eastward from the northern part of the eastern coast of the island of Lemnos. Scattered on this bank are numerous shallow rocky patches. During the day the bank can generally be distinguished by the color of the water, and at night it is covered by the red sector of the lower light at Cape Plaka, bearing 301° to 346° . The current southward of the bank sets northward. Vessels should pass eastward of the bank, giving it a wide berth.

Anatoli Patches, a rock with a depth of less than 6 feet and a 3-fathom patch, are located on the easternmost part of Kharos Bank in a position about $8\frac{1}{2}$ miles southeastward of Cape Plaka. The 3-fathom patch is one-half of a mile south-southeastward of the rock. About 2 miles southeastward of the rock lies a small detached rocky bank with a least depth of 6 fathoms. A $1\frac{1}{2}$ -fathom head is located in a position about 2 miles westward of Anatoli Rocks.

Kinduno (Kindhinos) Patch is a detached $3\frac{3}{4}$ -fathom rocky patch on Kharos Bank in a position $4\frac{1}{2}$ miles eastward of Kharos

Point. About $1\frac{1}{4}$ miles east-northeastward of Kinduno Patch is a 3-fathom rocky patch.

10-162 TENEDOS (BOZCA ADA) (*western extremity, $39^{\circ}50'$ N., $25^{\circ}58'$ E., H.O. Chart 4160*), the Turkish island lying 28 miles eastward of the southeastern point of the island of Lemnos and 3 miles off the mainland of Turkey, has a length of nearly 6 miles in an east and west direction and a maximum width of $3\frac{1}{2}$ miles in its eastern part. Mt. Elias, a conical hill, 625 feet high, conspicuous from the westward, is located about 700 yards within the northeastern extremity of the island, and a short distance southeastward of Mt. Elias is another hill, 385 feet high, named Mt. Sana. The island decreases in height toward its western end.

The island has several thousand inhabitants, who live in Tenedos, the only town on the island. The principal crop raised on this island is grapes.

Prohibited landing.—Landing is prohibited on the island of Tenedos.

Currents.—See sections 10-168 and 10-175.

10-163 Cape Marmara (Mermer Burnu) (Tuz Burnu), the western point of the southernmost part of the island of Tenedos, is rounded, cliffy, and surmounted by a small hill. Shoal depths extend only 100 yards from the cape.

10-164 Southwestern coast of Tenedos—Anchorage.—From Cape Marmara the coast trends first $3\frac{1}{2}$ miles west-northwestward to St. Dimitri Point and then $1\frac{2}{3}$ miles northwestward to Ponente Point (Ponent Burnu), the western extremity of the island. This entire coast is broken, and in places has shallow depths with rocks extending offshore as far as one-half of a mile.

The best anchorage under the southwestern coast of the island is $1\frac{1}{2}$ miles west-southwestward of Cape Marmara and south-

ward of the tumulus marked on the chart. The holding ground here is mud and sand. There is a good natural landing place.

A light is exhibited from a white masonry tower on a point 400 yards southeastward of Ponente Point.

10-165 Northern side of Tenedos—Shimal Bank (Şimal Bankı).—The northern coast of the island of Tenedos has a length of $4\frac{1}{2}$ miles between Ponente Point on the west and Mela Point on the east. This side of the island, especially the western half, should be given a berth of $3\frac{1}{2}$ miles, as Shimal Bank, a large bank limited by the 10-fathom curve, extends as far as 3 miles northward from the island and has on it numerous rocky areas with depths of less than 5 fathoms. Some of these depths of less than 5 fathoms are located as far as 1 mile northwestward and $1\frac{3}{4}$ miles northward of Ponente Point. The northern end of the ruined village of Yeni-Shehr (sec. 10-196) in range 056° with the southeastern coast of the island of Mavro (sec. 10-169) leads northwestward of Shimal Bank.

10-166 Shimal Rock (Şimal Kayası), which has a least depth of $2\frac{1}{2}$ fathoms, lies on Shimal Bank in a position $2\frac{2}{3}$ miles northeastward of Ponente Point and $1\frac{1}{2}$ miles offshore. The lighthouse on the islet of Gadaro (sec. 10-184) bearing not less than 118° leads northeastward of Shimal Rock.

A rock with less than 6 feet over it lies about $\frac{1}{4}$ mile eastward of Shimal Rock.

Kheraki (Mavna Adası), a small islet with a rock above water close northeastward of it, lies on Shimal Bank in a position $1\frac{1}{2}$ miles east-northeastward of Ponente Point and 600 yards offshore. Depths of 3 fathoms or less extend 500 yards northward from this islet.

Streblos (Gökçe Ada), another small rocky islet, lies on Shimal Bank in a position $1\frac{3}{4}$ miles eastward of that of Kheraki and 600 yards offshore. Depths of less than 3 fathoms extend 500 yards northeastward from this islet. About 500 yards westward of Streblos is a chain of above-water and sunken rocks extending 1,400 yards northward from the coast of Tenedos.

10-167 Petro Islet (Siçancik Adası), a small islet with depths of less than 5 fathoms extending a short distance from it, lies 700 yards north-northeastward of Mela Point.

Talbot Rock, which has depth of 3 feet, is the shoalest part of a shoal lying close westward of Petro Islet and as far as 700 yards northward of Mela Point. The northern and western edges of this shoal are steep-to.

The eastern coast of Tenedos, together with Port Tenedos, is described with the channel separating the island from the mainland in section 10-174.

10-168 RABBIT ISLANDS (TAVSAN ADALASI), a group of Turkish islands located 5 miles northward of the northeastern part of the island of Tenedos and 3 miles westward of the mainland of Turkey, lie in the southwestern approach to the Dardanelles, from which they are distant 7 miles. This group consists of one large island and three small ones, and, together with the neighboring rocky shoals, occupies an area extending $3\frac{1}{2}$ miles in a northwesterly and southeasterly direction. The passage between the Rabbit Islands and the dangers along the northern coast of the island of Tenedos is less than 4 miles in width.

Prohibited landing.—Landing is prohibited on the Rabbit Islands.

Currents.—Northward of the Rabbit Islands the current sets west-southwestward

with a velocity of $2\frac{1}{2}$ knots, and between these islands and that of Tenedos it sets westward at a rate of 1 knot. Eastward of the Rabbit Islands and the island of Tenedos the current sets southward with a velocity of $1\frac{1}{2}$ to 2 knots. See section 10-175.

10-169 Mavro (Tavşan Adası) (*western end, $39^{\circ}56'$ N., $26^{\circ}04'$ E., H.O. Chart 4160*), the largest island of the group, has a length of 1 mile in an east and west direction, a width of 800 yards, and a height of about 140 feet at its western end, where it is cliffy. A cairn stands on the cliffs forming the southeastern side of the island, and close eastward of the southwestern extremity of the island is a landing pier. On the northern side in a position one-half of a mile westward of the eastern end of the island is a well with a chapel and a farm close southward of it. The island is fringed close inshore by rocks above and below water. The 5-fathom curve is as far as one-half of a mile off the southern side, three-fourths of a mile westward of the southwestern extremity, as far as 1 mile off the northern side and only 200 yards off the eastern extremity.

Praso Islet (Prasa Adası), 22 feet high, lies 500 yards southwestward of the southwestern extremity of Mavro, to which it is connected by a reef having on it a large rock, named Mikro (Küçük Ada). Depths of less than 5 fathoms extend 250 yards southwestward from Praso Islet, and located 600 yards westward of this same islet and connected to it by depths of less than 5 fathoms is Smith Shoal, a 3-fathom patch.

A wreck with a depth of 3 fathoms over it lies about 200 yards northward of Smith Shoal.

10-170 Mansell Shoal, consisting of two detached 3-fathom patches distant one-half of a mile apart in a northwesterly and southeasterly direction and connected by depths of 5 to 4 fathoms, lies between $1\frac{1}{4}$ miles north-

northwestward and three-fourths of a mile northward of the lighthouse at the western end of Mavro. The eastern point of the island of Tenedos open westward of Praso Islet and bearing 168° leads westward of Mansell Shoal.

A wreck with a depth of 3 fathoms over it lies 200 yards northward of the northwestern 3-fathom patch.

Aird Shoals, having a least depth of 7 feet and composed of hard sand interspersed with rocks, lie within the 5-fathom curve that is as far as 1 mile off the eastern half of the northern side of Mavro. The passage between this shoal and the shallow bank fringing Mavro is about 600 yards wide and has a least depth of 19 feet. The western side of the islet of Gadaro (sec. 10-184), in range 176° with the eastern side of the islet of Phido leads eastward of Aird Shoals.

A light is exhibited from a white tower with a dwelling on the summit of Mavro.

Loney Bank, which has a least depth of 7 fathoms, lies $2\frac{1}{4}$ miles north-northeastward of the eastern extremity of Mavro.

10-171 Phido (Yilan Adası) and Drepano (Orak Adası), the southernmost of the Rabbit Islands, lie on a shoal rocky bank extending nearly 1 mile in an east and west direction, the former being near the eastern end and the latter near the western end. The bank extends 300 yards beyond Phido in an easterly direction, and a spit with depths of 4 fathoms and less extends 700 yards west-northwestward from Drepano. On the northern side of the spit lies a detached $2\frac{3}{4}$ -fathom patch.

A wreck with a depth of 4 fathoms over it lies about one-fourth of a mile northwestward of the islet of Phido.

The channel separating Phido and Drepano from Mavro has a width of only 500 yards between the spit extending west-northwestward from Drepano and the $4\frac{1}{2}$ -fathom spit extending one-half of a mile southward from Mavro, but farther eastward

it widens out to one-half of a mile or more. During northerly winds a vessel can anchor in any part of this channel. The northern end of the ruined village of Yeni-shehr (sec. 10-196) bearing 054° and open southeastward of Mavro leads to the western entrance of this channel, and in order to steer as near as possible a midchannel course, a vessel should keep the southern end of the village of Yeni Kioi (sec. 10-191) in range 081° with a peaked hill in the interior. The current in the channel sets westward.

Aldridge Rock, which has a depth of 5 fathoms, lies one-half of a mile east-southeastward of Phido.

10-172 MUSELIM CHANNEL TO THE DARDANELLES.—Tuzla Cay ($39^{\circ}35' N.$, $26^{\circ}07' E.$, *H.O. Chart 4188*), a river, discharges 7 miles north-northeastward of Cape Baba (sec. 10-69). Depths of less than 5 fathoms extend three-fourths of a mile seaward from the mouth of this river. In 1921 these depths were reported to have extended considerably farther seaward than indicated on the chart; therefore a vessel should give the mouth a berth of at least 3 miles.

10-173 Cape Eski Stambul ($39^{\circ}46' N.$, $26^{\circ}09' E.$, *H.O. Chart 4160*), on which is a small sand hill of moderate height, is located 10 miles northward of the mouth of the Tuzla Cay. The intervening coast is mostly a sandy beach, behind which rise Kaz Dağ (Sakar Kaya), 1,716 feet high, and Mt. Chigri (Cigri Dağ), 1,736 feet high. The village of Talian (Dalyan), located within the cape, is built on part of the ruins of the ancient city of Alexandria Troas, which was founded by Alexander the Great. Many ruins of this city are still visible, and the port, now silted up, is separated from the sea by a strip of low land.

10-174 Channel between Tenedos and the mainland.—This channel, sometimes referred to as Tenedos Channel, is entered from the southward between Cape Eski Stambul on the east and Cape Marmara (sec. 10-163) on the west, the distance between these capes being about $4\frac{1}{4}$ miles. The southern end of the channel is clear of dangers except for Suffren Shoals, and the northern end is contracted by Yukyeri Shoals, Ocean Rock, and the islet of Gadaro. The depth in the channel is 15 to 7 fathoms, and the nature of the bottom varies.

A submarine cable extends eastward across the channel from close south of Port Tenedos.

A dangerous wreck lies about $\frac{3}{4}$ mile south-southwestward of Oinos Point (sec. 10-180).

10-175 Current.—The current in the above-mentioned channel sets usually southward with a velocity of $1\frac{1}{2}$ to 2 knots. When southerly winds blow for extended periods, the current ceases until the wind effect has been overcome.

10-176 Eastern side of channel.—Between Cape Eski Stambul and Yukyeri Point, about 5 miles northward, the eastern side of the channel is indented eastward to a distance of $\frac{3}{4}$ to $1\frac{1}{4}$ miles by a large bight, the shore of which is fringed by depths of less than 3 fathoms as far as 500 yards offshore in most places. The northern part of this bight is named Yukyeri Bay

(Büyük Beşike Limanı). Abreast of this bay is a vast forest of oak trees, the timber of which is used for shipbuilding. The Odun-lik (Odunluk) River flows into the southern part of the large bight, and on the beach 1,400 yards northward of its mouth is the settlement of Odunluk (Odounlouluk), a group of sheds backed by dunes partly covered with vegetation. Odunluk has a small loading pier.

10-177 Suffren Shoals (Sufren Siglikarı)—A bank with depths of less than 5 fathoms extends 1 mile northwestward and $1\frac{1}{4}$ miles north-northwestward from Cape Eski Stambul. Suffren Shoals, two patches of rock and sand with a least depth of 13 feet on the southern one, and 15 feet on the northern one, lie on the northern part of this bank in a position near its western edge.

To pass westward of Suffren Shoals, keep the gap close within Bashika Point bearing more than 009° and open westward of Yukyeri Point, or keep the western extremity of the islet of Drepano bearing 347° and open slightly eastward of the islet of Gadaro. When Cape Marmara and Galley Point are in range, bearing 270° , a vessel is northward of the shoals.

At night the light on the islet of Gadaro bearing more than 350° leads westward of Suffren Shoals.

10-178 Yukyeri Shoals (Yük Yeri Siglikarı), scattered rocky and sandy patches with depths as small as $2\frac{1}{2}$ fathoms, lie as

far as three-fourths of a mile west-south-westward and 1 mile west-northwestward of Yukyeri Point (Kum Burnu), which is low and salient. Farther westward of these shoals are Ocean Rock and the islet of Gadaro, which, together with the channels between them, are described after Port Tenedos, located on the western side of the channel.

Petro Islet in range 292° with the southern side of the islet of Gadaro leads south-westward of the Yukyeri Shoals.

10-179 Anchorage.—A vessel can anchor off any part of the eastern shore of the channel, but during fresh northerly or northeasterly winds it is advisable to anchor in Yukyeri Bay in a depth of 7 fathoms, sand and mud, with the islet of Gadaro bearing 297° and Yukyeri Point, 348° . If necessary, a vessel can anchor closer inshore.

In 1930 a vessel anchored one-half of a mile off Odunluk in a depth of 8 fathoms, sand, with the lighthouse on the islet of Gadaro bearing 323° and Galley Point, 269° .

10-180 Western side of channel.—This side of the channel, formed by the eastern coast of the large island of Tenedos, presents nothing of interest to navigation except for Port Tenedos.

Galley Point, located 800 yards eastward of Cape Marmara (sec. 10-163), is the southern extremity of a narrow peninsula extending 500 yards southward from the island. Between Galley Point and Oinos Point (Oyinos Burnu), $1\frac{1}{4}$ miles northeastward, the coast is fringed by shoal depths extending offshore for only a short distance. Oinos Point, which is the easternmost point of the island, is steep-to at its extremity but has depths of less than 5 fathoms extending 250 yards off its northern side.

Between Oinos Point and Tar Point, $1\frac{1}{4}$ miles northward, the coast is indented by several small shallow bays separated by

rocky points. A shoal with a least depth of $2\frac{1}{2}$ fathoms, weeds, lies from 400 to 700 yards southward of Tar Point and 500 yards off the two rocky points abreast of it. Port Tenedos is located three-fourths of a mile farther northward of Tar Point, and the intervening broken cliffy coast has shoal depths extending as far as 350 yards off-shore. A small rocky islet is located within these shoal depths.

A light is exhibited from Oinos Point.

10-181 Port Tenedos ($39^{\circ}50'N.$, $26^{\circ}05'E.$, H.O. Chart 4160), the small harbor at the northern end of the eastern coast of the island of Tenedos, can accommodate only small vessels. A mole projects 200 yards eastward from the peninsula of Ku Castle (Bozca Ada Kalesi), forming the northern side of the harbor, and shelters the harbor from northerly winds (Tramontanes). Depths of 3 to 5 fathoms are in the eastern part of the harbor and general depths of 6 to 16 feet in its western part. Foul ground surrounds the head of the mole. The bottom consists of sand and weed. Several small piers are available for boats only.

A light is exhibited from a wooden pyramidal structure, 13 feet high, on the southern entrance point of Port Tenedos.

10-182 Anchorage.—A large vessel can anchor 400 yards eastward of the mole at Port Tenedos in a depth of 9 fathoms, sand and weeds. This berth, although affording shelter from south to west, is much exposed to north and northeasterly winds, and vessels should be prepared for sudden shifts of the wind to northeast, which are frequent and dangerous during the winter. As the current nearly always sets southward, a vessel, even with a breeze from the south, usually remains tide rode instead of wind rode.

The best anchorage for naval vessels is in a depth of 12 fathoms with Tar Point bear-

ing 243° and the lighthouse on the islet of Gadaro, 353°.

Prohibited anchorage.—Several submarine cables are landed in the vicinity of Port Tenedos; therefore vessels are forbidden to anchor westward of the bearing 180° on Ku Castle, and southward of the bearing 295° on the light structure at the southern entrance point.

A cable also lies between a position about $\frac{1}{2}$ mile southward of the southern entrance light of Port Tenedos and a position about $\frac{3}{4}$ mile southeastward of Yukyeri Point (sec. 10-178).

Twenty-four hours notice of arrival is required; 3 days in the case of vessels carrying explosives or inflammable cargoes.

10-183 The town of Tenedos is located at the eastern base of Mt. Sana, 385 feet high, with a monastery on its summit. The houses are almost all built of wood and surrounded by gardens. On the northern side of the harbor stands Ku Castle (Bozca Ada Kalesi), white and conspicuous. Provisions are available in small quantities. The town has telegraphic communication.

10-184 Gadaro (Fener Adası, or Esek Adası) (39°50' N., 26°05' E., *H.O. Chart 4160*), an islet 30 feet high, lies about 1 mile east-northeastward of Port Tenedos. Little Gadaro (Küçük Fener Adası), a much smaller islet, lies 200 yards westward of Gadaro, and these islets are on a rocky shoal extending 650 yards in an east and west direction. Both islets have a reddish appearance.

The deep channel between the rocky shoal surrounding these two islets and the mole at Port Tenedos is three-fourths of a mile in width. It is easy of access and free from dangers.

A light is shown from a concrete tower on a concrete base on Little Gadaro Islet. The remains of a lighthouse are located on Gadaro Islet.

10-185 Ocean Rock, located 1,200 yards east-northeastward of the islet of Gadaro, has a depth of $2\frac{3}{4}$ fathoms, and is surrounded by a sand bank having depths of less than 5 fathoms and extending 300 yards from it. The three mills at the southeastern end of the town of Tenedos in range 239° with the northwestern extremity of the islet

of Gadaro lead northwestward of Ocean Rock and Yukyeri Shoals.

The channel between the islet of Gadaro and Ocean Rock is 600 yards wide in that part of the fairway having depths of $5\frac{1}{2}$ to 10 fathoms, while the channel between Ocean Rock and Yukyeri Shoals is only 300 yards wide in that part of the fairway having depths of more than 5 fathoms. The latter channel is not recommended, as the edge of the shoals on either side are difficult to distinguish.

10-186 Bashika Bay (Beşike Limanı, or Koca Limanı).—From Yukyeri Point (sec. 10-178) the coast of the mainland trends $41\frac{1}{2}$ miles north-northeastward to Bashika Point and for the greater part consists of cliffs backed by hilly land.

Bashika Bay, which takes up the northern $2\frac{1}{2}$ miles of the preceding coast, recedes over one-half of a mile in an easterly direction. The shore of the northern half of this bay is low and backed by a marshy plain, and this stretch of the shore has shoal depths extending offshore as far as 900 yards. Ujek Tepe (Üvecik Tepesi), an artificial conical mound or tumulus, 284 feet high, located $1\frac{1}{2}$ miles eastward of the bay, is conspicuous. The hilly land west-southwestward of Ujek Tepe terminates at the bay in white cliffs fronted by a beach. On these cliffs in a position 250 yards southward of their northern end stands a fort at an elevation of 75 feet, and close north-northwestward of this fort is another fort in ruins.

10-187 Bashika Point (Beşike Burnu) (39°55' N., 26°09' E., *H.O. Chart 4160*), the northern limit of Bashika Bay, is a small rounded bluff having on it Paleo Kastro (Eski Kale), the remains of an old castle only a few feet above the ground. The eastern side of the bluff slopes down gradually for about 100 yards and forms a gap or valley with the spur from Bashika (Beşike) Tepe, a conspicuous, artificial, conical mound, 160 feet high, located 800 yards east-northeastward of the bluff.

Rocks above water lie close off Bashika Point, and shoal water extends farther out.

10-188 Anchorage.—Bashika Bay is considered a safe summer anchorage. The holding ground in some places is uncertain, and as several naval vessels have dragged their anchors during winds both from north-northeast and south-southwest, great attention is required when lying here. Vessels may anchor where convenient. A recommended berth is three-fourths of a mile offshore in a depth of 11 to 10 fathoms, mud, with the ruined village of Seddul Bahr, located on the northern side of the entrance to the Dardanelles, bearing about 013° and just open of Bashika Point, the southwestern extremity of the islet of Phido bearing about 300°, the lighthouse on the islet of Gadaro bearing 216°, and Ujek Tepe bearing about 079° and open northward of the white cliffs on the shore.

Small vessels can obtain shelter from northerly winds in a depth of 5 to 6 fathoms at a distance of 600 to 800 yards off the shore of Bashika Bay. Sometimes the water is clear enough so that the chain can be seen on the bottom in depths of 8 to 9 fathoms.

10-189 Current.—In the outer part of Bashika Bay the current at times sets southward with a velocity of 1½ knots and occasionally 2 knots. Its strength is less inshore, and occasionally a countercurrent sets northward. The current is much influenced by the force and direction of the wind.

10-190 Winds—Gales.—Strong gales from the westward and northwestward are not of long duration. During a gale from

the westward in December 1849 the British naval vessel *Caledonia* experienced an undertow, setting from the shore, which caused the vessel to ride without much strain on her cables.

The worst gales are from the northeast; southerly gales often blow with violence. The anchorage is partially sheltered from the latter by the island of Tenedos, and they usually terminate by shifting to the west-northwest and northwest. During the months of June to October 1853 the wind prevailed from the northeast and was usually moderate enough for boats to water. Capt. Bowden Smith, of the British naval vessel *Hercules*, in 1876, wrote:

“For the first two days after our arrival at Bashika we had a fresh breeze from the southwest, but on May 29 it commenced to blow hard from north and north-northeast, and from early in June till September 9 the strong breezes were nearly always from the north-northeast. These winds, though fresh and sometimes fiery during the day, usually went down in the evening, the nights being generally calm.

“Thunderstorms and the usual Mediterranean squalls were experienced during the months of June and July. For the greater part of October and the first part of November the prevailing winds were still northerly, but from November 27 to December 22 there was a great prevalence of southerly winds and mild weather, and on the last-named day, and also on the 23d, it blew a gale from south-southwest. During this gale the *Triumph* dragged her anchor three times, though having 100 fathoms of cable

out; it was thought the anchor could not have bitten properly before the gale commenced.

"On December 27, after a day's light wind and rain, it commenced to blow from the northeast, which freshened to a heavy gale with violent squalls, and lasted three days. Although the force of the wind was quite 10 in the squalls, the sea was not heavy, and the ship rode it out well with two anchors down and steam up. Snow fell on the 28th, but afterwards the weather became mild. Though the breezes were usually stronger from the northeast than from the south-southwest, the latter caused a more unpleasant sea for landing.

"As strong winds from west or northwest were not experienced, I cannot say how vessels would ride out a breeze from that exposed quarter, but my own impression is they would not suffer, and wind from these points of the compass is said to be rare.

"The climate during the summer has been all that could be wished for; though the sun during the day was powerful, the heat was never oppressive, and the nights were always cool and fresh. There was a marked difference in the temperature at Kavalla, or places on that shore, where we found the nights oppressively hot, while at Bashika it would be comparatively cool."

10-191 Coast.—Between Bashika Point and Cape Yeni-shehr, $4\frac{3}{4}$ miles north-northeastward, the cliffy coast is fringed with sand and rocks, which would make landing difficult. Along the first $3\frac{1}{2}$ miles of this coast the 5-fathom curve is one-fourth of a mile offshore, and then it commences to increase its distance off the coast, being charted as far as three-fourths of a mile offshore in the vicinity of Cape Yeni-shehr. A detached shoal with a least depth of $2\frac{1}{2}$ fathoms lies close within the 5-fathom curve in a position 1 mile southwestward of Cape Yeni-shehr and one-half of a mile offshore.

Yeni Kioi (Yeni Köy), a village, is built on

a 180-foot hill located $1\frac{1}{2}$ miles north-northeastward of Bashika Point, and $1\frac{1}{4}$ miles northward of this village is Demetrios Point (Taşlı Burun) close within which rises a 210-foot tumulus.

10-192 This section has been deleted.

10-193 ENTRANCE TO THE DARDANELLES (CANAKKALE BOĞAZI) (H. O. Chart 4160 and H. O. Chart 4162.—The Dardanelles (Çanakkale Boğazi) leads from the northeastern part of the Aegean Sea to the Sea of Marmara (Marmara Denizi). The northwestern side of this strait is formed by the southeastern coast of Gallipoli Peninsula (Gelibolu Yarımadası), and its southeastern side is formed by the northwestern coast of Asiatic Turkey. Only the southwestern entrance having a width of 3 miles between Cape Yeni-shehr on the south and Cape Helles on the north is described in this volume; for the remainder of the strait, see B. A. Black Sea Pilot.

Vessels bound through the Dardanelles en-route to Turkish ports are required to stop at Canakkale and obtain clearance including pratique. Service is available day and night and previous notice is not necessary. Dardanelles pilots are not compulsory but may be obtained at Canakkale for any port on the Sea of Marmara. Signal for the pilots is the "G" flag by day and "G" on the whistle by night; previous notice is not necessary. Boarding part or pilot meets the vessel off the town of Canakkale just after passing through the Narrows.

10-194 Aspect.—A vessel approaching the Dardanelles from the southwestward will identify the entrance first by the white cliffs of Cape Helles, on which stands a lighthouse. The British National War Memorial, located northeastward of the lighthouse, is conspicuous. Another conspicuous landmark on the northern side is

Achi Baba (Alçı Tepe), 718 feet high, located 5 miles northeastward of Cape Helles; it first appears as an isolated conical peak.

On the southern side of the entrance are the cliffs between Demetrios Point and Cape Yeni-shehr.

When a vessel has approached the entrance closer, the ruined village of Seddul Bahr, on the northern side, and that of Yeni-shehr, on the southern side, will be seen. Yeni-shehr is not fully visible to a vessel from the southward until it bears 045°, when Kum Kale will also be seen.

10-195 Prohibited anchorage.—An area in which anchoring and fishing are prohibited is located in the entrance to the Dardanelles from the coast westward to meridian 26°04', and between the parallels of 39°56' N. and 40°06' N., as shown on the chart.

10-196 Cape Yeni-shehr (Yeni Şehir Burnu) (40°00' N., 26°11' E., *H.O. Chart 4160*), the southern limit of the entrance immediately southward of which is the ruined village of Yeni-shehr (Yeni Şehir), can be distinguished by a 230-foot hill having a large house on its summit. Although the cape is steep towards the sea, it terminates in a low point. About one-half of a mile northeastward of the cape and close inland are two conspicuous tumuli, which are said to be the tombs of Achilles and Patroclus, and three-fourths of a mile farther northeastward is Kum Kale, an old ruined stone castle standing on a low salient point.

The 5-fathom curve is charted 1,200 yards off Cape Yeni-shehr and off the coast for one-half of a mile northeastward from the cape; then this curve gradually approaches the coast and is only 300 yards off Kum Kale. As this coastal bank with depths of less than 5 fathoms was reported (1906) to be extending seaward, vessels should give this area a wide berth.

Shoals.—Shoal spots with a minimum depth of 4½ fathoms are located from about ½ to ¾ mile westward of Kum Kale Light.

A depth of 6 fathoms lies about 3½ miles eastward of the same light.

A dangerous wreck lies about 1 ¼ miles eastward of the same light.

A light is exhibited from a white stone tower at the northwestern corner of Kum Kale.

10-197 Cape Helles (Helas Burnu) (40°03' N., 26°11' E., *H.O. Chart 4160 and H.O. Chart 4162*), the northern entrance point of the Dardanelles is the middle of three, high, steep, white points, which together form the headland at the southwestern extremity of Gallipoli Peninsula. Cape Tekeh (Teke Burnu), the northwestern point, is located 1,500 yards northwestward of Cape Helles and 1,200 yards east-southeastward of Cape Helles is Cape Greco, the southeastern point. This headland, although steep, is fringed by shallow water and sand with rocks extending up to about one-fourth of a mile offshore from Cape Tekeh to southward of Cape Greco.

Caution.—Mariners are cautioned that shoal patches with depths of 5 fathoms or less exist within ½ mile southward of Cape Helles and Seddul Bahr.

The coast northward of Cape Helles is described in section 10-220.

A light is exhibited from a white masonry tower on Cape Helles.

Monument.—The British National War Memorial, erected 500 yards northeastward of the lighthouse on Cape Helles, is a conspicuous obelisk, 70 feet high, standing on the highest land in this vicinity.

10-198 Seddul Bahr (Seddülbahir), a ruined village, is located on the slope of a hill within Cape Greco. Immediately westward of the village are the ruins of Seddul Bahr Castle, an old stone fortress, and on the height close northward of the castle is the ruined fort of Shahim Kalesi.

Signal station.—A conspicuous white building with a signal mast nearby stands on the hill northeastward of Seddul Bahr Castle.

10-199 This section has been deleted.

Landing.—Within the limits of this volume, Seddul Bahr is the only place where landing is permitted for the purpose of visiting the cemeteries in the vicinity. (See sec. 10-71.)

Below the castle is a stone pier with a depth of 10 feet along its southern face. Caution is necessary when approaching this pier, as it is protected by a stone mole terminating in a sunken lighter.

Current.—The main current in the entrance to the Dardanelles sets west-southwestward with an average velocity of $1\frac{1}{2}$ knots, the maximum being about 3 knots. The current is stronger along the Asiatic side and runs with considerable strength along the edge of the coastal bank extending from Cape Yeni-shehr.

10-200 Directions for approaching the Dardanelles.—When a vessel is approaching the Dardanelles from the southwestward, the island of Tenedos will be sighted during the day at a distance of 30 miles; at night the light at Ponente Point, the western extremity of this island, will be seen. A vessel can pass between the island of Tenedos and that of Lemnos, or through the channel separating the island of Tenedos from the mainland. As the Dardanelles is approached, the current becomes stronger, and at times has such a strength that sailing vessels must anchor if the wind is light.

The distance between Kharos Bank, extending from the eastern side of the island of Lemnos, and the island of Tenedos is about 17 miles. To avoid this bank, do not pass northwestward of a line between Cape Irene, the southeastern extremity of the island of Lemnos, and Cape Kephala, the eastern extremity of the island of Imbros. The bank can be avoided also by not passing westward of the meridian of the western end of the island of Imbros.

If passing between the island of Tenedos and the Rabbit Islands, keep on the northern side of the channel, as the current sets

west-southwestward toward Shimal Rock. The northern end of the ruined village of Yeni-shehr in range 056° with the south-eastern coast of the island of Mavro leads northwestward of Shimal Bank. Having passed Shimal Bank, a vessel can seek anchorage under the island of Mavro or off the mainland.

If passing northward of the Rabbit Islands, give the island of Mavro and the shoals northward of it a wide berth on account of the uncertainty and strength of the currents. The 210-foot tumulus at Demetrios Point in range 105° with an inland peak leads well northward of Mansell Shoal and Aird Shoals, but it should be observed that this course leads over Loney Bank.

When approaching from westward a vessel of low power may skirt the southern side of Imbros (sec. 10-210), where northeasterly winds generally draw more northward, to avoid the influence of the current; the coast is free of dangers to a distance of 1 mile. Anchorage can be found southward of Imbros.

The channel between the island of Tenedos and the mainland is generally used by vessels coming from the southward. The only danger at the southern entrance are Suffren Shoals off Cape Eski Stambul, which should be given a wide berth. The fairway most used at the northern end of this channel is that between Port Tenedos and the islet of Gadaro, but if intending to use the fairway between the islet of Gadaro and Ocean Rock, pass 500 yards eastward of the islet.

The shoal depths at Bashika Point should be given a wide berth, and the islet of Phido should not be approached nearer than 1 mile by a vessel with a deep draft in order to avoid Aldridge Shoal. Continuing northward, alter course gradually so as to give Kum Kale a berth of 400 yards or more, taking care when in the vicinity of the bank at Cape Yeni-shehr not to get into depths of

less than 10 fathoms, as the depths decrease rapidly.

Kum Kale may be passed at a distance of not less than 400 yards, but vessels of deep draft must avoid the 5-fathom and $4\frac{1}{2}$ -fathom patches about $\frac{1}{4}$ mile and $\frac{1}{2}$ mile, respectively, westward of Kum Kale.

At night a vessel should keep the white sector of the light on Cape Helles, bearing more than 010° until the light on Kum Kale bears more than 104° .

When the large village of Aren Kioi (Erenköy), located on the side of a hill $6\frac{1}{4}$ miles eastward of Kum Kale, opens northward of Kum Kale and bears 087° , course may be altered northeastward, but these marks in range do not clear the 5-fathom and $4\frac{1}{2}$ -fathom patches westward of Kum Kale.

10-201 IMBROS (IMROZ ADASI) (*H. O. Chart 3968*), the Turkish island located in the northwestern approach to the Dardanelles at a distance of 9 miles from this strait, extends 16 miles in an east and west direction and has a maximum width of 7 miles in its eastern part. Composed mainly of rock of volcanic origin and having important outcrops of sedimentary strata, the island has along its middle part a range of rocky domes and pinnacles, north and south of which are fertile basins with hog-backed ridges. The northern coast is dominated by the highest ridge, over 1,500 feet, while the middle ridge for the most part is over 1,000 feet high. Mt. Elias, the summit, located near the center of the island, is 1,959 feet high.

The island has a few forest trees, and these, together with numerous olive and poplar groves, give the island a well-clothed appearance. The most striking feature is the contrast between the bare southern slopes and the rich verdure of the valleys in the interior. The water is chiefly surface water and dries up in the summer; the only permanent supply of drinking water is from wells and a few springs on the hillsides.

The population of the island is about

10,000, mostly Greeks engaged in agriculture. The villages, the houses of which have red roofs, are mostly built above the line of cultivation. There are numerous chapels on the hilltops, and also windmills in the villages facing the sea. Panagia (Imroz), the principal village with about 1,600 inhabitants, is located 2 miles inland of the eastern coast.

Prohibited landing.—Landing is prohibited on the island of Imbros.

10-202 Currents.—In September 1920 a British naval vessel experienced between the island of Imbros and the Dardanelles a current setting south-southwestward with a velocity of $1\frac{1}{2}$ knots. In September 1930 another British naval vessel, when rounding Cape Kephala at a distance of $3\frac{1}{2}$ miles from the southward, experienced a southerly set of $1\frac{1}{2}$ knots.

The current round the western end of the island is variable. A strong current has been observed setting eastward along the southern coast.

10-203 Winds.—In the summer a steady breeze, sometimes a strong wind, passes from the Black Sea over the island of Imbros. The air, ever getting warmer, is dry, the only exception to this being that an occasional depression, forming in South Russia or Rumania, may draw air from the southwest over the island of Imbros. The only summer rains, however, seem to be those due to thunderstorms.

In the winter the conditions are quite otherwise, owing to the location of the island in the track of the cyclonic disturbances that pass from west to east. These cyclones, when passing over the island of Imbros, are much elongated in a northeast and southwest direction, the consequent weather sequence resulting from the passage of one of these depressions being as follows: A south to southwest wind springs up while the center is still west of the island of Imbros. This wind, which may bring rain, and sometimes brings a deluge, lasts until the low center is over the island of Imbros, when a short calm ensues, sometimes lasting for a day, but

usually much less; then quite suddenly the temperature falls, and a north to northeast wind springs up, rising quickly to a gale, bringing the icy air from the Russian steppes and the Balkans.

10-204 Climate.—The climate of the island of Imbros is subject to that of the eastern Mediterranean; that is, a hot dry summer and a mild winter, characterized by the passage of frequent rain-bearing cyclonic storms.

10-205 SOUTHERN SIDE OF IMBROS.

—The western part of the southern coast of the island of Imbros should be approached with caution, as there are two detached patches in addition to the shoal depths fringing the shore.

Avlaka Point ($40^{\circ}07' N.$, $25^{\circ}40' E.$, *H. O. Chart 4126*), the western extremity of the island of Imbros, is located $11\frac{1}{2}$ miles north-eastward of Cape Plaka, the northeastern extremity of the island of Lemnos, from which it is separated by a deep channel clear of dangers.

Anchorage.—Between Avlaka Point and Afok Point, 4 miles southeastward, the coast is indented by a slight bight, where vessels can obtain anchorage. Care should be taken to avoid the southeastern half of the bight, where rocky shallows of 3 fathoms or less extend as far as 1,400 yards offshore.

10-206 Pyrgos Point (Pirgos Burnu), located three-fourths of a mile east-northeastward of the southeastern limit of the preceding bight, is a cliffy headland, 56 feet high, extending 200 yards southeastward from the general trend of the coast. On the summit of this point stands a conspicuous white chapel, and near this chapel is another chapel in ruins. On the neck of land joining the headland to the island is the village of Pyrgos. Other conspicuous marks are a house northwestward of the village and a

chapel standing on the top of a 145-foot hill eastward of the anchorage. A flagstaff stands near Pyrgos Point, and about $\frac{1}{2}$ mile eastward of it there is a beacon.

Foul ground with rocks above and below water extends 200 yards eastward and southward from Pyrgos Point, and 100 yards farther offshore is the 3-fathom curve.

A pier with a depth of 4 feet at its head is located eastward of Pyrgos Point, and at the point $11\frac{1}{2}$ miles farther eastward is Pirgos Iskelesi. Small local trading craft generally unload on the sandy beach just westward of Pyrgos Point.

Anchorage.—During good weather convenient anchorage can be obtained 500 to 1,000 yards off the head of the bight eastward of Pyrgos Point. The depths at these distances offshore are from 5 to 10 fathoms, sand, good holding ground. During northeasterly gales a heavy sea sets into this anchorage, and a strong current sets westward.

10-207 Aliki Anchorage ($40^{\circ}07' N.$, $25^{\circ}57' E.$), about $8\frac{1}{2}$ miles eastward of Pyrgos Point, is limited to the west by Wedge Point and to the east by Cape Aliki, the distance between them being about 2 miles. Cape Aliki, with cliffs eastward of it, Ark Royal Bluff, 1,200 yards west-northwestward of the cape, and a chapel 1 mile westward of the bluff are conspicuous. Aliki Lake, the brackish lake within the cape, is gradually filling up with sand and nearly dries up in the summer.

Vessels often take shelter from northerly winds by anchoring southward of the lake. Those having a deep draft should not proceed into depths of less than 9 fathoms.

During January, 1940, the American vessel *Schodack* anchored in a depth of 25 fathoms, white sand with broken shells and black specks, with Wedge Point bearing 351° distant $1\frac{1}{4}$ miles, Pyrgos Point bearing 269° , and Cape Helles lighthouse bearing 100° . The vessel in ballast rode to a scope of 90 fathoms on the port anchor and of 105 fath-

oms on the starboard anchor. A northeasterly to north-northeasterly wind (force 8-9) was blowing; the vessel did not drag and was wind rode. Although Wedge Point was covered with snow, it was easily recognized from the south. Having once identified Wedge Point, a vessel can make a safe approach by keeping it on the port bow and using soundings.

10-208 Coast.—From Cape Aliki the southern coast of the island curves gradually northeastward for a distance of 4 miles and terminates in Cape Kephalo. Along this stretch of the coast the 10-fathom curve is from $\frac{1}{2}$ to $1\frac{1}{2}$ miles offshore, and close within this curve in a position 2 miles 150° from Cape Kephalo is a detached shoal with a least depth of $5\frac{1}{2}$ fathoms. The shorebank with depths of less than 5 fathoms and on which are many rocks, some above water, extends about 800 yards south-southeastward from Cape Aliki, and about the same distance southward from the shore between Ark Royal Bluff and the chapel.

10-209 EASTERN SIDE OF IMBROS.—Cape Kephalo ($40^\circ 10' N.$, $26^\circ 01' E.$), the eastern extremity of the island of Imbros, is about 88 feet high. It is the northern termination of a level peninsula, about 100 feet high, extending about 2 miles in a northeasterly direction from the southeastern part of the island, to which it is joined by a low sandy isthmus. A bank with depths of less than 5 fathoms, sand and rock, extends 1,000 yards eastward 500 yards northward, and 800 yards westward from this cape. A detached $5\frac{1}{2}$ -fathom patch and a detached $4\frac{2}{3}$ -fathom patch lie 1,100 yards north-northeastward and 1,000 yards northeastward, respectively, of the cape.

A light is shown on Cape Kephalo.

10-210 Kephalo Bay, located westward of Cape Kephalo, is 2 miles wide in its entrance and recedes about $1\frac{1}{2}$ miles in a southerly direction. This bay affords good anchorage to all classes of vessels in depths

of 10 to 5 fathoms, sand, except during bad weather from the north. It was used as a base by the Allied Navies during World War I.

Between Cape Kephalo and Cliff Point (Yar Burnu), 95 feet high, located 1 mile southwestward, the southeastern side of the bay is indented by Foul Cove (Çapariz Liman), the shore of which consists of yellow cliffs. These cliffs extend also one-half of a mile southward from Cliff Point. This cove is encumbered with shoals and should not be used for anchoring.

Between the western entrance point of Kephalo Bay and Rocky Point (Taşlı Burun), located 1 mile southward, the western shore of the bay is indented by a slight bight with depths of less than 5 fathoms. The shore of this bight consists of alternate stretches of sand and rocks and is backed by bare rocky slopes. Rocky Point, 126 feet high, is a somewhat conspicuous mass of boulders.

The head of Kephalo Bay is sandy and backed by numerous low sand hills. A detached rocky patch of $4\frac{3}{4}$ fathoms lies 900 yards northwestward of Cliff Point and 200 yards northward of the outer end of a spit having depths of less than 5 fathoms and terminating the irregular depths of less than 5 fathoms that extend a considerable distance from the head of the bay. A detached rocky patch of $2\frac{2}{3}$ fathoms lies about 850 yards south-southwestward of Cliff Point. Oruba Cove, located at the western end of the head of the bay, affords good shelter during northerly gales to boats and small craft up to 100 tons. Landing is possible at the remains of two jetties on the northwestern side of this cove; the depth at the jetties is only $1\frac{1}{2}$ feet.

10-211 Landmarks.—A white beacon, consisting of a pile of stones surmounted by a wooden pillar, stands at an elevation of 104 feet about 750 yards northwestward of Rocky Point.

A windmill stands on a 94-foot hill located 1 mile southwestward of Rocky Point. A conspicuous house stands about $1\frac{1}{2}$ miles east-southeastward of the above windmill.

Anchorage.—A good berth in Kephalo Bay for large vessels is in a depth of about $6\frac{1}{2}$ fathoms, sand, with the windmill bearing 227° and Cliff Point, 105° . Generally speaking, the holding ground, composed of fine sand, is good, but it is not so good in the southeastern part of the bay as in the other parts.

The bay affords perfectly safe anchorage during a southerly gale, but the usual precaution is necessary, as the wind generally veers to the northwest. Vessels should be prepared to proceed to Aliki Anchorage as soon as a shift of wind to northward occurs. The barometer will nearly always give warning of an impending change, usually commencing to rise before the northerly wind sets in.

10-212 Directions.—When approaching Kephalo Bay from the eastward, give Cape Kephalo a berth of at least 1 mile. Having passed the cape, steer westward until the windmill on the hill bears 227° ; then steer for the windmill on this bearing, anchoring as convenient.

Welcome Point ($40^\circ 14' N.$, $25^\circ 57' E.$, *H. O. Chart 4180*), the northeastern extremity of the island of Imbros, is a bold, cliffy headland rising to a height of 359 feet; it is steep-to, the 10-fathom curve being 70 yards from the shore. Grafton Point, $1\frac{1}{2}$ miles southeastward of Welcome Point, is a bold headland; a rock, 36 feet high, projects from this point.

10-213 Kusu Bay, located between Welcome Point and Grafton Point, recedes two-thirds of a mile to the southwestward and is open to the northeast and east. The plain at the head of the bay, as well as all the available areas on the slopes of the hills are cultivated. The two white chapels situated

on the shore of the bay are conspicuous when the sun shines on them.

The 10-fathom curve is 300 yards off Grafton Point and 800 yards off the head of the bay; at the latter place the depths decrease evenly to the 3-fathom curve located 400 yards offshore. A rock 1 foot above water lies 300 yards east-northeastward of the northern chapel. A shoal, which is clearly visible in fine weather on account of the discoloration of the water, extends 70 yards seaward from this rock. Turk Reef is a low point of flat rock; the hills in rear of the point consist of a kind of gray shale.

A pier with a depth of 4 feet at its outer end is situated near the chapel on the northern side of the bay.

Two wrecks lie in the northwestern part of Kusu Bay, the outer one having a depth of 5 feet over it and lying about 450 yards southeastward of the pier.

The bay affords anchorage in fine weather and with southerly winds; the bottom is sand, good holding ground. Vessels should be prepared to leave in the event of the wind freshening from the northward, as a heavy sea is quickly raised with the wind from this direction.

10-214 Northwestern side of Imbros.—The northwestern coast of the island of Imbros appears to be clear of dangers beyond a distance of one-fourth of a mile from the shore. This side of the island affords no anchorage, being steep-to almost everywhere. The small village of Kastro, located $2\frac{1}{2}$ miles westward of Welcome Point, has a boat harbor. This village is connected by road with the principal village of Panagia in the interior of the island.

A light is shown about 2 miles westward of Welcome Point.

10-215 SAMOTHRAKI (center, $40^\circ 26' N.$, $25^\circ 35' E.$, *H. O. Chart 3968*), which belongs to Greece, is a large oval-shaped island

located 13 miles northwestward of Imbros Island. It was reported in 1947 that Samothraki lies about $11\frac{1}{4}$ miles southeastward from its charted position. The island extends $11\frac{1}{2}$ miles in an east and west direction, has a maximum width of 7 miles, and at its center attains a height of 5,184 feet in Mt. Fengari, spurs from which cover almost the whole surface of the island. The coast is regular, being skirted here and there by rocks. The island has no harbor or roadstead, but the best place for anchorage is along its low and sandy southwest coast.

The island has about 5,000 inhabitants, of whom about 2,000 live in the capital town Samothraki. The principal product is charcoal from the forests that cover the mountainous surface; and agricultural products, such as grain, vegetables, and olives, are raised on the few level areas.

Wreck.—Numerous sunken and stranded wrecks lie on or near the island.

Current.—The current has been observed setting eastward with a velocity of 2 knots near the coasts of Samothraki.

10-216 Cape Akrotiri, the western extremity of the island of Samothraki, is a very low tongue of land extending one-half of a mile from the general line of the coast. The depths around this tongue are great. Great caution must be observed at night in the vicinity of this cape, because the proximity of the high land renders any judgment of distance doubtful.

A light is exhibited on Cape Akrotiri.

10-217 Kamariotis (Kamariotissa) Bay, open to the northwest and north, is located on the northern side of the island in a position immediately eastward of Cape Akrotiri. The bay has deep water in its inner part and is free from dangers except for several sunken rocks close off the northern part of its eastern shore. At the head of the bay is the small settlement of Kamariotissa,

which is the port for the capital town Samothraki, located several miles in the interior. The settlement has two breakwaters. The harbor has depths of 14 feet and can accommodate vessels up to 100 feet in length. Fuel and small amounts of water are available.

Two lights are shown at the settlement.

Anchorage.—There is a good deep water anchorage 600 to 800 yards northwestward of the breakwater at Kamariotis Bay. The bottom is sand.

10-218 Coast.—Pyrgos Point, located 4 miles northeastward of Cape Akrotiri, has on it the conspicuous ruins of an ancient tower, and nearby are the houses of the village of Palaiopolis. The coast for 2 miles west-southwestward from Pyrgos Point has shoal water extending a considerable distance from it, and the projecting points eastward of Pyrgos Point have sunken rocks extending from them, especially Zagoriotti (Zagoriatis) Point and Fonia Point at the Phonias River. Close westward of Fonia Point stands a conspicuous chapel and nearby is a wooden pier with 7 feet at its head.

From the Phonias River the northeastern coast of the island trends 3 miles southeastward to Skepastro (Angistrion) Point. Along this stretch of the coast are rocks above and below water, and depths of less than 5 fathoms extend nearly one-half of a mile off-shore. From Skepastro Point, the northeastern extremity of the island, the coast trends 2 miles southward to Kipo (Kipos) Point, the southeastern extremity.

From Kipo Point the southern coast of the island trends 6 miles west-southwestward to Cape Malathria. The eastern part of this coast is steep and has some rocks close off it. Also some rocks above and below water lie close off Cape Malathria.

Between Cape Malathria and Cape Akrotiri, 8 miles northwestward, the southwest-

ern coast of the island is low and sandy. The area in front of this side of the island has the most suitable depths for anchoring and is used by local small craft serving the needs of the island. Sunken rocks extend offshore for a short distance in places. Immediately westward of Cape Malathria is the settlement of Xiropotamos.

10-219 Zurafa (Zourafa) Rock ($40^{\circ}28' N.$, $25^{\circ}50' E.$, *H. O. Chart 3968*), an off-lying danger, is located 6 miles eastward of Skepasta Point, the northeastern extremity of the island of Samothraki. This danger consists of three rocks above water, the larger and middle rock having a length of 16 feet, a width of 4 feet, and a height of 2 feet. The rocks are surrounded by a fairly steep-to bank with depths of less than 20 feet. During southwesterly winds and a short sea the breakers on Zurafa Rock were visible from a distance of 4 miles. During poor visibility and especially at night the recognition of the breakers is difficult, if not impossible.

Vessels bound to Alexandroupolis and passing eastward of the islands of Imbros and Samothraki pass between Zurafa Rock and Cape Grenea, the northern entrance point of the Gulf of Xeros. Quite a number of vessels, fearing Zurafa Rock and giving it too great a berth, have been driven on the coastal bank northwestward of Cape Grenea.

Current.—The current at Zurafa Rock has been observed to set eastward with a velocity of 2 knots.

10-220 DARDANELLES TO THE GULF OF XEROS—Coast (*H. O. Chart 3968*).—The western coast of Gallipoli Peninsula (Gelibolu Yarımadası) has a length of $16\frac{1}{2}$ miles between the entrance to the Dardanelles on the south and the Gulf of Xeros

on the north. This coast recedes eastward as far as $3\frac{1}{2}$ miles to form a large bight, and at the northernmost part of the bight is Suvla Bay. The shore along the southern part of the bight consists of cliffs, while that along the northern part is a sandy beach backed in the interior by hills varying from 230 to 1,000 feet in height. For a distance of $3\frac{1}{2}$ miles southeastward from Suvla Bay the shelving beach of hard sand is adapted for landing, and behind this part of the beach is a cultivated plain.

Two conspicuous monuments stand on the ridge about $4\frac{1}{2}$ miles southeastward of the southern entrance point of Suvla Bay. The northeastern one, erected to commemorate the services of the New Zealand contingents on the peninsula in 1915, is about 80 feet in height. The southwestern one, named Lone Pine Memorial and erected in memory of "The Missing," is 45 feet in height.

Shoal.—A $3\frac{1}{2}$ -fathom shoal, steep-to on its western side was reported (1934) to lie in the above-mentioned bight in a position $6\frac{1}{2}$ miles north-northeastward of Cape Tekeh, the southern limit of the bight, and 1 mile offshore. As this shoal was not examined, vessels are cautioned to give this part of the coast a wide berth.

Current.—Off the western coast of Gallipoli Peninsula the usual set of the current is north-northwestward with a velocity of about $1\frac{1}{2}$ knots; however, the current is much influenced by the prevailing wind.

10-221 Suvla Bay (Küçük Anafarta Limanı) ($40^{\circ}18' N.$, $26^{\circ}14' E.$) is about $1\frac{3}{4}$ miles wide in its entrance between Niebruniessi Point (Küçük Kemikli Burnu) to the south-southeast and Cape Suvla (Büyük Kemikli Burnu) to the north-northwest, and recedes about $1\frac{1}{4}$ miles in an easterly direction. During the

summer this bay affords good anchorage in depths of 12 to 5 fathoms, sand, sheltered from southerly, easterly, and northerly winds.

Niebruniessi Point, the southern entrance point, has depths of less than 5 fathoms extending 650 yards westward from it, and the same distance west-southwestward of the point lies a detached 3-fathom patch. Cape Suvla, the northern entrance point, is the termination of Kışlar (Karakol) Dağ, a coastal ridge having a height of about 300 feet. A light is shown from Cape Suvla. A spit with depths of less than 5 fathoms extend 400 yards west-southwestward from Cape Suvla, and at the extremity of this spit is Talbot Shoal, having a depth of 3 1/2 fathoms. Close off the northern side of Cape Suvla are the Taylor Islets, consisting of an islet with a length of 100 yards and some rocks above water.

The southeastern shore between Niebruniessi Point and Cape Campbell, 1,600 yards northeastward, is indented by a bight, named Berridge Bay, having depths of 3 fathoms and less. The shore of this bight consists of low cliffs having close offshore rocks above and below water. The head of the bay is low and sandy, and the 3-fathom curve is about 500 yards offshore. The northern shore between Cape Suvla and Cape Godfrey, 1 mile eastward, has in places low cliffs separated by sandy beaches, four of which are named West Beach, Kangaroo Beach, Albion Beach, and Hospital Beach. Depths of less than 5 fathoms extend 200 to 400 yards from this irregular side of the bay.

A large and shallow salt water lake is located close inland of Suvla Bay. In the summer this lake is nearly dry and overgrown with rushes.

10-222 GULF OF XEROS (MUARIZ KÖRFEZİ) (SAROS KÖRFEZİ) (H. O.

Chart 4184), the large gulf forming the northeasternmost part of the Aegean Sea, has a width of 17 miles in its entrance between Cape Suvla on the south and Cape Gremea on the north, and recedes 31 miles in an east-northeasterly direction between mountainous land on either side. The land at the head of the gulf is low. The gulf is free from off-lying dangers except at its head, where there is also a group of islands.

Caution.—The northwestern coast of Gallipoli Peninsula, which forms the southeastern shore of the gulf, was reported (1916) to lie 1/2 to 3/4 mile farther northward than charted.

Currents.—The currents in the Gulf of Xeros are irregular and appear to be influenced by the wind. After a fresh northerly wind for a few hours a strong southerly set was experienced, but as soon as the wind moderated the current set strongly in the opposite direction.

10-223 SOUTHEASTERN SIDE OF THE GULF OF XEROS.—Kışlar Rocks (Çocuk Kayası) (40°21' N., 26°15' E., *H. O. Chart 3968*), a group of rocks above and below water, lie 2 1/2 miles northeastward of Cape Suvla and one-half of a mile offshore. The group extends one-half of a mile in an east and west direction, and 200 yards off the northern side of the group is the 100-fathom curve.

10-224 Arapos Mermedia Bay (Ece Limanı) (40°22' N., 26°20' E.), entered 6 miles northeastward of Cape Suvla, is 1,400 yards wide in its entrance between West Cape, 280 feet high, on the southwest and East Cape, 180 feet high, on the northeast, and recedes only half of that distance in a southerly direction. Being thick black mud, the holding ground is good, but near the shore, especially under the cliffs, the bottom is foul. At the head of the bay

is a sandy beach, and near the middle of the beach is the mouth of the Kurtumus (Koca) Dere, a stream flowing through a cultivated valley. Good water may be obtained from this stream.

Sunken rocks extends 50 yards northward from both West Cape and East Cape. A rocky spit with depths of 2 to 4 fathoms extends 350 yards westward from the eastern shore in a position 600 yards southward of East Cape. Another rocky spit having on it a rock with a depth of 3 feet extends 150 yards northward from the beach close westward of the mouth of the Kurtumus Dere.

Anchorage.—The best berth is about 350 yards off the head of Arapos Mermedia Bay in a depth of 8 fathoms, with West Cape bearing 291° , distant 600 yards.

10-225 Coast (*H. O. Chart 4184*).—Between Arapos Mermedia Bay and a point 11 miles northeastward the coast is steep-to. Less than 1 mile within this stretch of the coast is a range of mountains varying in height from 1,000 to 1,478 feet.

Pasha Dere, a small jagged rock, 16 feet high, lies 600 yards northeastward of the last-mentioned point and 300 yards offshore. This rock is foul on its northern and western sides, and 400 yards northwestward of the rock are depths of 5 fathoms.

Yeni Kioi (Yeni Köy), a town with some windmills near it, stands on a 748-foot hill located $2\frac{1}{4}$ miles eastward of Pasha Dere and 1 mile inland.

Sunken rocks extend 200 yards from the point located $4\frac{1}{4}$ miles northeastward of Pasha Dere, and three-fourths of a mile southwestward of this point is a $2\frac{1}{2}$ -fathom shoal extending 400 yards from the shore.

Yenikli Liman (Yıldız Koyu), located $3\frac{3}{4}$ miles eastward of the point with sunken rocks extending from it, is a small bight, which can be distinguished by red cliffs.

Between Yenikli Liman and Cape Xeros,

3 miles northeastward, the coast consists of irregular cliffs, 50 to 200 feet high. These cliffs are broken nearly midway by a stretch of marshy land. The cliffs are fringed by a narrow rocky bank.

10-226 Cape Xeros (Bakla Burnu) ($40^\circ 33' N.$, $26^\circ 45' E.$, *plan on H. O. Chart 4163*) is the northern termination of a tongue of land that extends one-half of a mile in a north-northeasterly direction and forms the western shore of Port Baklar. On the cape at an elevation of 50 feet are the ruins of a mud fort. Sunken rocks extend 100 yards from the cape.

A light is shown from Cape Xeros.

Port Baklar (Bakla Limanı), the bay located just eastward of Cape Xeros, is shallow for the greater part, the 3-fathom and the 5-fathom curve being, respectively, 1,000 and 1,400 yards off the southern shore. About 700 yards southeastward of Cape Xeros is an area with depths of 4 to $3\frac{1}{4}$ fathoms, where small vessels can anchor. To reach this anchorage, a vessel should steer a course of 216° for a small hill, or tumulus, located 1 mile south-southwestward of Cape Xeros. Vessels of deep draft having occasion to call at the port should anchor farther out.

10-227 Kavach River (Kavak Suyu) ($40^\circ 36' N.$, $26^\circ 50' E.$ *H. O. Chart 4163*), which has shoal depths extending one-half of a mile seaward from its mouth, flows into the head of the gulf about midway along its eastern shore. This river is navigable by boats as far as the village of Kavach (Kavak), a distance of $2\frac{1}{2}$ miles. The entrance channel between two sandbanks has a depth of 6 feet.

Shoal depths are reported to extend from the head of the gulf in a position from 1 to $1\frac{1}{2}$ miles southward of the mouth of the Kavach River.

10-228 NORTHERN SIDE OF THE GULF OF XEROS.—Cape Grenea (Gremya Burnu). ($40^{\circ}35' N.$, $26^{\circ}07' E.$, *H. O. Chart 3968*), the northern entrance point of the Gulf of Xeros, is a rounded headland composed of low yellow cliffs. The actual cape, a yellow cliff, is separated from yellow cliffs on either side by sandy beaches, the one to the eastward being about 1 mile in length. It is difficult at first to distinguish the cape from the other cliffs, but the cape can be recognized by the sandy beaches and by the fact that the cliff to the eastward is longer, has a cleaner face, and shows two clefts, close together, appearing like the letter "W" to a vessel coming from the south.

Coast.—Between Cape Grenea and Cape Ibriji, $18\frac{1}{2}$ miles eastward, the northern shore of the gulf is fringed by shoal water extending offshore for a short distance, and there are no offlying dangers along this stretch of the shore. The shore is backed by hills and mountainous land in the interior.

10-229 Cape Ibriji (Ibrice Burnu) (Ibrik Baba Burnu) ($40^{\circ}35' N.$, $26^{\circ}31' E.$, *H. O. Chart 4184*), the only salient point on the northern side of the gulf, appears like an island when a vessel is approaching from Cape Grenea, and can be mistaken for that of Xeros. Shoal water extends 300 yards from the cape. About 1,200 yards north-northeastward of Cape Ibriji is a small cove with deep water and a sandy beach, which is a good landing place.

Prohibited landing.—See section 10-71.

Bustan (Bostan) Burnu ($40^{\circ}38' N.$, $26^{\circ}44' E.$, *H. O. Chart 4163*) is located 10 miles east-northeastward of Cape Ibriji, and the intervening coast in places has shallow depths extending offshore for a distance of 200 to 500 yards. The pier extending eastward from Bustan Burnu has a depth of 8 feet at its head.

Shoal.—A rocky shoal, which has some

parts awash and a length of 200 yards in a north and south direction, is charted 1,200 yards south-southwestward of Bustan Burnu; the position of the shoal is approximate. The area northward of this shoal has irregular depths and should be avoided. Pass southward of the shoal by favoring the Xeros Islands.

10-230 Xeros Islands (Muariz Adaları) (Saros Adaları), a group consisting of an island and two islets, are located near the head of the Gulf of Xeros. Xeros (Muariz Adası, or Saros Adası), the island of the group, lies $1\frac{1}{2}$ miles southward of Bustan Burnu. This cliffy island attains a height of 250 feet, and on its southeastern side has the ruins of a monastery. Fringing the island and extending as far as 100 yards from its salient points are shoal depths with sunken rocks.

Xero Mikro (Küçük Muariz Adası) and Xero Skopelo (Muariz Adacigi), the two islets of the group, are located respectively 1,200 yards and 1 mile east-northeastward of the island of Xeros. These two islets are separated from each other by a channel with a width of 300 yards and depths of 10 to 6 fathoms in the fairway. Extending about 100 yards from the shores of both islets are shoal depths with sunken rocks.

Radar target.—It has been reported that the island of Xeros is a good radar target with an echo range of 17 miles under normal conditions.

Anchorage.—Anchorage can be obtained between the island of Xeros and the islet of Xero Mikro in depths of 16 to 15 fathoms, sand and mud. In the area between north-northwest and northeast of the two islets is anchorage for a number of vessels in depths of 14 to 10 fathoms, good holding ground. These two anchorage areas lie on either side of a bank that extends from the northern

shore of the gulf to the islets and has depths of less than 10 fathoms over it.

10-231 GULF OF XEROS TO ALEXANDROUPOLIS ROAD—Coast (*H. O. Chart 3968*).—Between Cape Grenea, the northern entrance point of the Gulf of Xeros, and the entrance to Lake Bori, $8\frac{1}{2}$ miles north-northwestward, the coast is low and fringed by a shoal bank. This bank at a short distance northward of the cliffs at Cape Grenea has depths of 1 to 2 fathoms and extends offshore for a distance of $1\frac{1}{2}$ miles, then it decreases its distance offshore and at a position 1 mile southward of the entrance to Lake Bori again commences to increase its distance offshore. Vessels passing Cape Grenea from southward should not stand into depths of less than 7 fathoms; in the vicinity where the bank extends $1\frac{1}{2}$ miles offshore, they should not shoal the water to a depth of less than 12 fathoms, as here the depths decrease suddenly from 10 to 3 fathoms.

Caution.—As several vessels have grounded on the shallow coastal bank northwestward of Cape Grenea, and the current from westward sets strongly over it, caution should be exercised in this vicinity. The coast should be given a berth of at least $2\frac{1}{2}$ miles. A good daytime mark for clearing the bank is to keep the town of Enos open northwestward of the bluff on the southern side of Lake Bori.

10-232 Lake Bori (Dırana Göl).—The entrance to this lake is narrow and shallow, and gales cause it to shift. Within its entrance the lake has depths of 6 to 1 feet. One of the mouths of the Maritza (Meriç) (Evros) River discharges at the eastern end of the lake, and another mouth of this same river is located a short distance northward of the entrance to the lake. This river is the boundary between Turkey and Greece.

Enos (Enez), the town located on the southern side of the lake, is a port of Edirne (Adrianople), with which it has some trade. In the town stands an old Genoese castle. The Maritza River is navigable by flat boats all the year round as far as Edirne, 70 miles inland, and by barges from October to June.

Local sailing vessels of about 30 tons leave Enos partly loaded and complete loading outside of the entrance, the usual depth on the bar being about $3\frac{1}{2}$ feet.

The town of Enos is connected to the general telegraph system.

10-233 Anchorages.—Coasting vessels of any size anchor off the coast with the town of Enos bearing 041° . Here they are sheltered a little from southerly gales by the coastal bank northwestward of Cape Grenea.

Temporary anchorage in a depth of 7 fathoms is available off the coast westward of the town of Enos. It is, however, recommended that a vessel gain an offing when the summit of the island of Samothraki becomes covered with clouds, an infallible sign of bad weather.

Current.—It was reported (1878) that the current in the area northward of Cape Grenea had a velocity of 2 to 3 knots and was irregular.

10-234 Coast.—Between the entrance to Lake Bori and Alexandroupolis Road, 6 miles northwestward, the coast recedes in a northeasterly direction to form a bight. Depths of less than 5 fathoms extend $1\frac{3}{4}$ miles from the low shore of this bight. Inland of the shore are lagoons, which are fish hatcheries for the most part. Also at a distance of one-third of a mile off the shore are moored numerous small buoys to show the limits of free fishing.

A radiobeacon transmits from a position about $3\frac{1}{4}$ miles eastward of Alexandroupolis.

Alexandroupolis Road, together with directions for approaching from the southward, is described in section 7-121.

APPENDIX II.—METEOROLOGICAL TABLES

[U. S. Weather Bureau, Department of Commerce]

STATION—ATHENS (ATHINAI), GREECE.—Position, latitude 38°06' N., longitude 23°46' E. Altitude, 784 feet

Month	Air temperature, ° F.					Relative humidity (percent)		Cloud amount (0-10)		Rainfall			Wind										Average number of days with low fog	Average number of days with gales	
	Mean			Extreme						Average amount (inches)	Number of days with rain †	Maximum in 24 hours (inches)	Mean velocity (knots)	Percentage of observations from—											
	Monthly	Maximum	Minimum	Maximum	Minimum	0800	1400	0800	1400					North	Northeast	East	Southeast	South	Southwest	West	Northwest	Calm			
January	47.6	53.1	42.1	70	20	77	62	5.9	6.2	2.17	12	2.2	8.68	15	23	5	4	12	8	5	9	19	13	1.2	
February	49.2	55.8	42.6	74	21	76	60	5.9	6.4	1.49	12	1.6	8.68	13	20	6	5	16	10	5	8	16	12	1.2	
March	53.3	60.4	46.2	83	20	72	54	5.2	5.9	1.39	10	1.9	8.16	11	20	5	4	15	12	5	8	20	14	0.9	
April	59.8	68.0	51.6	91	35	65	48	4.7	5.4	.86	8	1.6	7.12	9	16	5	4	16	16	5	5	21	12	0.8	
May	68.2	77.0	59.5	101	42	59	44	3.8	5.1	.81	8	1.9	6.17	9	14	4	3	17	18	7	4	24	13	0.4	
June	76.0	84.9	67.1	109	54	52	40	2.0	3.6	.58	6	1.7	6.60	9	13	4	3	17	18	8	5	23	11	0.2	
July	81.3	90.3	72.3	106	58	46	33	0.7	1.9	.30	2	2.0	8.68	15	24	4	2	11	13	6	5	20	9	0.2	
August	80.8	89.6	72.1	107	59	47	34	0.9	1.9	.39	2	1.7	8.68	17	29	4	1	8	10	4	6	21	9	0.6	
September	75.0	83.3	66.6	103	48	56	40	2.0	3.0	.67	4	2.1	7.12	13	25	4	2	11	11	4	4	26	11	0.4	
October	67.1	74.3	59.9	95	38	69	52	4.1	4.9	1.65	9	2.4	6.60	12	25	5	8	13	10	4	4	24	14	0.3	
November	57.6	63.5	51.8	87	30	78	60	5.8	6.1	2.79	12	5.9	7.64	11	27	7	5	12	8	5	6	19	12	0.8	
December	51.1	56.5	45.7	71	24	78	64	6.0	6.4	2.48	13	2.1	7.64	11	22	7	5	13	8	5	7	22	15	1.3	
Mean	64.0	71.4	56.5	—	—	64	49	3.9	4.7	—	—	—	7.64	12	22	5	3	13	12	6	6	21	—	—	
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Extreme	—	—	—	109	20	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Number of years	46	46	46	70	70	42	29	40	40	54	34	21	35	20										34	34

• Days with trace or more rain.

Authorities: Temperatures in Europe—Reed, Distribution of Precipitation, Annales Obs. Natl. D'Athènes.
Sailing Directions—Mediterranean—H. O. No. 184A.

STATION—GITHION (YITHION), GREECE.—Position, latitude 36°45' N., longitude 22°34' E. Altitude, 197 feet

Month	Cloud amount (0-10)		Rainfall			Wind											Average number of days with fog	Average number of days with gales 2	Average number of days with thunder-storms
	0900	1400	Average amount (inches)	Number of days with rain	Maximum in 24 hours (inches)	Mean velocity (knots) ¹	Percentage of observations from—												
							North	Northeast	East	Southeast	South	Southwest	West	Northwest	Calm				
January.....	6.0	5.8	4.03	9.5	2.07	5.04	24	14	1	7	7	24	6	17	0	4.0	0	1.0	
February.....	5.7	5.8	2.34	7.6	1.65	7.21	23	24	2	5	8	19	4	15	0	0	0	0.7	
March.....	5.1	5.6	1.96	6.4	1.70	4.78	14	15	6	6	9	31	2	13	4	4.0	0	1.7	
April.....	3.7	3.9	1.13	5.5	1.36	4.86	7	2	3	5	15	45	7	9	6	2.0	0	0	
May.....	3.3	4.0	.61	5.5	.78	3.91	9	1	4	3	20	32	10	14	4	0	0	0.3	
June.....	1.0	1.8	.33	2.9	1.21	3.91	12	3	5	3	28	21	6	12	10	0	0	0.7	
July.....	.4	1.1	.02	.9	.12	3.65	16	7	3	5	21	14	4	9	21	0	0	0.3	
August.....	.4	1.1	.18	1.2	.48	3.82	13	1	2	4	17	30	10	9	14	0	0	0.3	
September.....	1.8	2.8	.87	3.4	1.40	3.73	15	8	8	3	20	22	3	3	18	0	0	2.3	
October.....	4.1	4.3	2.13	6.3	1.85	3.65	19	4	1	5	13	35	1	14	8	0	0	1.0	
November.....	4.7	5.0	3.15	7.8	2.78	4.34	17	7	4	6	8	20	5	19	6	0	0	1.0	
December.....	6.6	6.8	3.86	9.6	1.81	5.82	19	9	7	6	8	20	5	23	3	2.0	0	2.7	
Mean.....	3.6	4.0				4.52	16	8	4	5	15	26	5	13	8	12.0	1.0	12.0	
Total.....			20.61	66.6		2.78													
Extreme.....																			
Number of years.....	3	3	13	13	12	13	3									1-2	3	3	

• After March 1926 scale 0-12.

• Force 9 or over on scale 0-10.

• 1927-30.

Authority: Annales Obs. Natl. D'Athènes.

STATION—IZMIR (SMYRNA), TURKEY.—Position, latitude 38°26' N., longitude 27°10' E. Altitude, 16 feet

Month	Air temperature, °F.					Relative humidity (percent)		Cloud amount (0-10)		Rainfall			Wind										Average number of days with fog	Average number of days with gales	Average number of days with thunderstorms		
	Mean			Extreme		0700	1400	0800	1400	Average amount (inches)	Number of days with rain .01 inch	Maximum in 24 hours (inches)	Mean velocity (knots)	Maximum velocity (knots)	Percentage of observations from—												
	Monthly	Maximum	Minimum	Maximum	Minimum										North	Northeast	East	Southeast	South	Southwest	West	Northwest				Calm	
January.....	46.2	55	39	73	12	74	58	5.5	6.7	4.37	10.3	3.15	3.47	39.08	17	8	8	2	15	0	1	1	48	0.6	0	1.6	
February.....	47.5	57	39	78	11	75	55	5.2	6.6	3.55	9.6	3.15	3.47	43.42	16	7	11	1	21	0	1	0	43	0	0	1.5	
March.....	52.7	63	43	84	19	72	52	5.4	6.2	3.09	8.2	2.45	3.47	56.45	14	5	5	1	17	1	4	0	53	0	0	.8	
April.....	59.4	69	49	91	30	67	49	4.6	6.3	1.70	6.3	1.81	3.82	43.42	12	2	4	1	24	2	9	1	45	0	.3	1.3	
May.....	68.4	79	56	106	37	64	46	3.3	5.9	1.28	5.0	1.75	3.47	40.81	9	1	7	1	22	1	19	1	39	0	0	2.2	
June.....	75.7	86	64	111	38	57	44	1.8	3.1	.45	2.0	1.81	4.08	39.08	14	1	11	1	21	0	21	0	31	0	0	.7	
July.....	81.0	92	69	108	44	54	41	.5	1.6	.14	1.0	1.14	4.43	34.74	18	2	11	0	12	1	26	1	29	0	0	.2	
August.....	80.1	92	69	107	39	62	49	.7	1.3	.07	.8	1.69	4.43	47.76	26	3	16	0	6	0	15	1	33	0	0	.4	
September.....	73.0	86	62	104	31	63	45	1.4	2.0	.92	2.0	3.36	3.04	34.74	17	3	4	0	5	0	11	3	57	0	0	1.2	
October.....	65.7	77	55	98	31	72	51	3.1	4.6	2.16	4.8	3.08	2.26	30.39	21	1	3	0	7	0	3	0	65	0	0	2.4	
November.....	56.5	67	48	89	18	73	56	4.6	6.3	3.38	8.6	3.18	3.13	39.08	13	5	2	1	22	1	1	0	55	.3	0	2.2	
December.....	49.5	59	43	80	16	80	63	5.3	6.2	5.07	11.1	2.90	2.52	39.08	9	4	9	1	19	0	1	0	57	0	0	2.2	
Mean.....	63.0	73	53	.....	.....	68	51	3.5	4.7	.....	.....	3.47	.....	.....	15	3	8	1	16	1	9	1	46	1.4	3	15.3
Total.....	26.18	69.7
Extreme.....	111	11	3.45	56.45
Number of years.....	38	27	26	38	37	10	10	11	5	52	30	19	9	10	9										8	2-3	11

1 40 miles per hour.

Authorities: Mediterranean Pilot Vol. IV 6th Ed. 1920—Br. Admiralty. République Turque—Off. Centr. de Statistique, Publ. 142—Ankara (Recordak). Meteorologische Zeitschrift—1910. Turkey Met'l Inst.—Yagis Tevziati Butteni. Annales Bureau, Centrale, France. Statin Int. College, Smyrna. Met'l Rasatlari: Ankara.

STATION—KASTRO (KASTRON), LEMNOS ISLAND.—Position, latitude 39°55' N., longitude 25°04' E. Altitude, 30 feet

Month	Air temperature, °F.					Mean relative humid- ity (percent)	Mean cloud amount (0-10)	Rainfall				Wind								Average number of days with gales	Average number of days with thunder- storms			
	Mean			Extreme				Average amount (inches)	Number of days with rain, 0.1 mm.	Maximum in 24 hours (inches)	Mean velocity (knots)	Percentage of observations from—												
	Monthly	Maximum	Minimum	Maximum	Minimum							North	Northeast	East	Southeast	South	Southwest	West	Northwest			Calm		
January	49.5	54.0	45.0	66	25	77	6.4	4.15	10.5	5.60	7.03	4	39	8	3	20	3	6	4	13	13.3	2.2	2.2	
February	49.6	55.9	43.2	65	30	72	6.0	2.59	10.2	1.92	9.64	3	50	8	3	17	6	5	4	4	10.3	2.2	2.2	
March	52.3	58.6	46.0	68	32	71	4.6	3.56	9.2	2.85	7.03	4	33	7	8	19	6	7	5	11	13.0	2.8	2.8	
April	58.4	66.2	50.7	77	38	71	4.7	1.54	8.5	1.88	6.25	3	34	4	9	18	8	7	3	17	9.3	1.2	1.2	
May	65.4	73.6	57.2	85	36	69	3.8	1.14	6.8	.93	4.43	6	30	5	6	9	13	6	4	21	3.3	2.2	2.2	
June	72.6	81.0	64.2	92	51	63	2.5	.35	3.0	.62	6.25	18	30	2	3	8	4	9	9	17	3.7	1.5	1.5	
July	79.7	88.2	71.2	98	62	58	.9	1.53	1.5	3.35	5.56	23	30	1	(*)	1	4	5	19	17	4.0	1.0	1.0	
August	78.6	86.9	70.3	97	63	60	1.1	.43	1.6	.91	6.25	17	32	1	1	7	5	5	18	14	3.0	1.5	1.5	
September	71.8	79.5	64.2	90	52	66	2.3	1.35	4.0	1.29	6.25	14	36	1	3	11	3	3	9	20	4.3	2.0	2.0	
October	64.2	71.1	57.2	83	45	75	4.0	3.64	9.3	1.81	7.47	8	37	3	9	11	5	3	4	20	14.0	2.0	2.0	
November	56.4	62.1	50.7	75	36	78	5.6	2.98	9.5	1.65	7.03	7	49	9	8	10	10	3	2	12	10.0	1.8	1.8	
December	50.5	55.0	46.0	69	28	76	7.2	4.21	14.8	1.58	9.64	3	49	5	6	16	6	4	1	10	16.3	1.8	1.8	
Mean	62.4	69.3	55.5	.....	.....	70	4.2	.....	.....	.....	6.95	9	38	4	5	12	5	5	7	15	.....	.....	.....
Total	.....	.....	.....	98	25	.....	.....	27.47	88.8	5.60	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	104.5	23.2	.....
Extreme
Number of years	3	3	4	3	4	4	4	4	4	4	4	4								3	4	.....	.....

1 28 miles per hour.

*Less than 0.5 percent.

Authority: Greece Bul. Mensuel Climatologique.

STATION—KAVALLA, GREECE.—Position, latitude 40°56'N., longitude 24°25'E. Altitude, 108 feet

Month	Air temperature, °F.					Mean cloud amount (0-10)	Rainfall			Mean velocity (knots)	Wind									Average number of days with fog	Average number of days with gales †	Average number of days with thunderstorms
	Mean			Extreme			Average amount (inches)	Number of days with rain .01 inch	Maximum in 24 hours (inches)		Percentage of observations from—											
	Monthly	Maximum	Minimum	Maximum	Minimum						North	Northeast	East	Southeast	South	Southwest	West	Northwest	Calm			
January	42.4	48.2	36.7	62	22	4.6	2.41	7.0	1.73	6.69	36	19	6	2	1	6	13	16	0.2	3.0	0.5	
February	46.9	50.9	39.7	66	26	5.8	1.43	8.0	1.87	7.47	36	17	16	2	1	2	12	11	0	2.5	0.5	
March	49.8	54.9	43.2	72	34	5.5	2.11	9.2	1.63	6.69	25	19	19	7	2	4	1	8	15	1.2	2.8	1.0
April	57.4	63.5	60.7	78	43	5.1	1.24	10.8	1.57	6.25	14	35	22	4	2	4	1	4	14	0	1.8	1.5
May	66.7	74.8	60.8	85	50	4.2	1.13	7.5	1.65	5.56	12	23	29	7	1	7	1	3	17	0	1.5	1.0
June	73.8	80.8	67.1	94	55	3.8	.92	6.2	1.98	4.78	10	17	27	6	3	12	2	4	19	0	1.8	1.8
July	77.5	86.2	71.2	98	67	2.4	.76	3.8	1.28	4.78	14	12	22	5	2	9	4	8	24	0	3.0	1.0
August	78.8	86.5	71.8	94	63	2.1	.85	4.0	.80	5.21	13	13	15	6	9	12	2	10	15	0	1.0	3.2
September	72.1	78.6	64.2	91	52	3.7	.79	4.5	.91	4.78	13	19	18	7	7	11	1	7	17	0	1.2	1.8
October	63.3	69.1	56.3	82	39	3.9	2.25	6.3	1.46	5.21	21	18	9	4	8	7	2	10	21	0	1.0	1.0
November	52.3	59.0	47.3	73	34	5.6	2.47	8.0	1.74	5.56	28	23	16	5	4	1	2	7	14	1.8	1.8	.8
December	46.9	54.0	43.2	69	28	6.2	2.30	8.2	1.73	6.25	31	21	11	4	4	1	4	10	14	0	1.0	1.0
Mean	60.6	67.3	54.3			4.4				5.73	21	20	18	5	4	6	2	8	16			
Total							18.16	83.5												3.2	22.4	13.1
Extreme				98	22				1.74													
Number of years	15	6	6	4	3	6	4	4	4	4	4									4	4	4

¹ Elevation at 30 feet.² Force 9 (scale 0-10).

Authorities: Greece Bulletin Mensuel Climatologique. Klimatologie und Meteorologie von Massedon-Kuhlbrodt.

STATION—KYTHERA (KITHIRA), KYTHERA ISLAND.—Position, latitude 36°08'N., longitude 23°00'E. Altitude, 528 feet

Month	Air temperature, °F.					Mean relative humidity (percent)		Mean cloud amount (0-10)		Rainfall			Wind										Average number of days with fog	Average number of days with gales
	Mean			Extreme						Average amount (inches)	Number of days with Rain	Maximum in 24 hours (inches)	Percentage of observations from—											
													Mean Velocity (knots)	North	Northeast	East	Southeast	South	Southwest	West	Northwest	Calm		
	Monthly	Maximum	Minimum	Maximum	Minimum	Average amount (inches)	Number of days with Rain	Maximum in 24 hours (inches)	Mean Velocity (knots)	North	Northeast	East	Southeast	South	Southwest	West	Northwest	Calm						
January	52	55	46	66	30	70	5.8	4.3	7	2.1	11.4	39	6	2	5	6	14	20	8	0	0	0.1		
February	54	56	47	68	28	72	5.6	3.5	7	1.8	10.6	34	6	3	6	6	15	23	7	0	1	0		
March	56	59	49	73	33	70	5.1	1.7	5	1.6	10.2	31	6	3	5	4	9	32	9	1	.7	0		
April	61	64	53	81	39	67	4.5	.9	2	1.2	9.8	35	4	1	3	6	8	37	6	0	.7	0		
May	68	71	59	91	50	62	3.6	.6	2	.6	7.5	34	4	1	1	3	5	47	4	1	2	0		
June	74	78	65	98	54	61	2.0	.2	2	1.0	6.7	31	2	1	0	1	3	58	5	1	0	0		
July	81	85	70	102	58	53	.7	.3	0	.6	6.7	45	4	0	0	1	1	48	1	0	0	0		
August	82	86	70	100	59	52	.8	.2	1	1.4	6.7	53	5	0	0	0	2	39	1	0	.3	0		
September	78	82	67	99	54	57	1.6	.5	.7	1.2	7.0	50	3	1	1	2	3	39	1	0	.3	0		
October	70	73	61	91	50	65	3.6	2.2	4	2.2	7.5	53	6	2	2	3	7	23	4	0	.3	0		
November	62	65	54	79	39	71	5.3	4.3	7	4.7	9.5	41	8	3	6	6	15	16	5	0	.7	0		
December	56	58	50	70	32	72	5.6	5.6	9	2.4	9.5	39	7	4	5	6	14	19	6	0	.4	0		
Mean.....	66	69	58	.....	.....	64	3.7	.....	.....	8.6	40	5	2	3	4	8	33	5	0	.....	.....	.....
Total.....	.....	.....	.....	.....	.....	.....	.....	24.0	45	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	7.4	.....	
Extreme.....	.....	.....	.....	102	28	.....	.....	.....	.....	4.7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Number of years.....	19-20	17-18	18	18-19	19	19-20	22	22	12	19-20	18-19	19										7	8	

¹ Max. fall during 24 hrs. from one morn. obs. to next.² Day with trace or more rain.³ Force 9 or more on scale 0-10.

Authorities: Brit. Mediterranean Pilot, Vol. IV—6th Ed. 1929. Athens Annales de l'Obs. Natl d'Athens. Rés Mens. des. Obs. des Stations Met. de Grèce 1928.

STATION—LAMIA, GREECE.—Position, latitude 38°54' N., longitude 23°27' E. Altitude, 328 feet

Month	Air temperature ° F.					Relative humidity (percent)		Cloud amount (0-10)		Rainfall			Wind								Average number of days with fog	Average number of days with gales †	Average number of days with thunderstorms		
	Mean			Extreme						Average amount (inches)	Number of days with rain 0.01 inch	Maximum in 24 hours (inches)	Mean velocity (knots)	Percentage of observations from—											
	Monthly	Maximum	Minimum	Maximum	Minimum	North	Northeast	East	Southeast					South	Southwest	West	Northwest	Calm							
	0800	1400	0800	1400	North	Northeast	East	Southeast	South	Southwest	West	Northwest	Calm												
January.....	45.6	52.5	38.8	71	20	75	64	6.2	6.3	2.55	11.6	1.65	3.99	10	1	7	3	2	1	10	25	41	0.8	0	0.1
February.....	47.2	54.5	39.9	77	18	74	63	6.2	6.6	2.61	9.8	2.19	4.43	8	2	12	6	2	1	8	21	40	.8	0	.2
March.....	52.2	60.3	44.1	86	25	72	57	6.0	6.2	2.04	8.0	1.54	4.86	5	1	15	7	3	1	9	19	40	.4	0	.2
April.....	59.7	68.9	50.5	97	36	66	53	5.0	5.7	1.45	6.5	1.67	5.30	5	3	17	10	4	1	9	15	36	.3	.1	.1
May.....	68.1	78.3	57.9	98	41	61	47	4.1	5.3	1.62	6.2	3.86	5.30	4	3	18	10	3	1	10	13	38	.1	0	.1
June.....	76.1	87.3	64.9	108	43	65	42	2.6	4.0	1.15	3.9	1.81	5.73	4	2	17	11	3	1	10	15	37	0	.1	.5
July.....	80.8	92.3	69.3	113	49	80	40	1.4	2.8	.70	2.5	1.35	4.43	5	2	19	10	2	(*)	10	13	39	0	0	.1
August.....	80.2	91.8	68.7	109	54	83	41	1.3	2.6	.74	2.5	1.66	4.43	6	3	21	12	2	1	9	8	38	0	0	.3
September.....	73.6	84.0	63.1	103	42	60	46	3.1	3.9	1.09	5.3	1.22	3.66	6	1	20	10	2	(*)	6	10	45	.1	0	.4
October.....	64.8	73.6	56.1	100	36	72	57	5.0	5.5	2.60	7.9	2.64	2.17	9	1	13	6	2	1	5	10	63	.2	0	.5
November.....	65.0	62.1	47.8	84	25	75	64	6.2	6.2	3.17	9.7	1.79	2.87	10	1	9	4	2	1	7	15	51	.3	0	0
December.....	48.6	55.0	42.3	73	17	78	68	6.2	6.4	3.06	10.5	2.48	3.21	9	2	8	3	1	1	8	21	47	1.1	0	.1
Mean.....	62.7	71.7	53.6	—	—	66	54	4.4	5.1	—	—	—	4.17	7	2	15	8	2	1	8	15	42	—	—	—
Total.....	—	—	—	—	—	—	—	—	—	22.78	84.4	—	—	—	—	—	—	—	—	—	—	—	4.1	.3	2.9
Extreme.....	—	—	—	113	17	—	—	—	—	—	—	—	3.98	—	—	—	—	—	—	—	—	—	—	—	—
Number of years.....	27					20				28	20	28	26	26								9	12	17	

* Less than 0.5 percent.

† Force 9 or over on scale 0-16.

Authorities: Annales De L'Observatoire National D'Athens. Greek Annales, Vol. 7.

STATION—PORT LAKI, LERRO ISLAND.—Position, latitude 37°07' N., longitude 26°52' E. Altitude, 203 feet

Month	Air temperature, °F.			Relative humidity (percent)		Cloud amount (0-10)		Average amount rainfall (inches) †
	Mean			0800	1900	0800	1900	
	Monthly †	Maximum ‡	Minimum ‡					
January.....	52.7	57.6	47.8	70.2	70.1	7	7	0.86
February.....	52.5	57.0	48.9	67.2	65.6	6	5	.54
March.....	56.5	62.2	50.5	65.3	65.9	6	5	.36
April.....	61.5	67.5	55.6	66.9	68.6	6	5	.06
May.....	69.3	76.3	61.5	61.9	67.4	4	4	.05
June.....	75.7	83.1	67.3	55.2	59.1	2	1	.02
July.....	79.7	87.4	73.8	54.5	57.7	0	0	-----
August.....	79.3	87.3	73.0	55.3	61.5	0	0	-----
September.....	74.8	81.9	68.9	63.5	67.0	2	1	.01
October.....	69.4	77.0	63.5	69.7	72.6	4	3	.18
November.....	62.1	67.1	57.6	72.6	71.0	6	5	.28
December.....	57.7	62.4	53.8	74.4	72.9	8	7	.78
Mean.....	65.9	72.2	60.2	64.7	66.6	4	4	-----
Total.....	-----	-----	-----	-----	-----	-----	-----	-----
Extreme.....	-----	-----	-----	-----	-----	-----	-----	-----
Number of years.....	5	5	-----	5	5	5	5	5

† 1/4 0800 and 1900 reading.

‡ 1900 reading.

§ 0800 reading.

¶ Total of 0800 and 1900.

Authority: Balotimo Met. Della Aerologia del Aeronautica—Rome—Italian.

STATION—PORT VATHI, SAMOS ISLAND.—Position, latitude 37° 44' N., longitude 27° 00' E. Altitude, 230 feet

Month	Air Temperature °F.					Relative humidity (per cent)	Cloud amount (0-10)	Rainfall			Wind										Average number of days with fog	Average number of days with gales ¹	Average number of days with thunderstorms	
	Mean			Extreme				Average Amount (inches)	Number of days with rain, 0.1 mm.	Maximum in 24 hours (inches)	Mean velocity (knots)	Percentage of observations from—												
	Monthly	Maximum	Minimum	Maximum	Minimum							North	Northeast	East	Southeast	South	Southwest	West	Northwest	Calm				
January.....	52.0	57.6	46.4	69	33	75	6.3	8.47	11.8	3.77	7.90	4	13	9	26	11	5	3	17	12	0	8.0	1.5	
February.....	52.2	58.5	46.0	69	30	70	6.0	7.63	14.0	4.11	8.77	9	11	10	17	11	7	7	22	6	0	7.2	1.8	
March.....	56.3	63.5	49.1	76	37	66	4.4	4.35	9.2	2.12	7.90	8	11	6	20	7	5	8	23	12	0	6.8	2.2	
April.....	62.8	70.0	55.6	83	45	66	5.3	2.31	7.2	1.62	7.03	4	5	6	19	11	9	7	26	13	0	3.8	1.8	
May.....	70.0	78.8	61.2	94	53	62	3.7	1.92	6.8	1.64	6.96	2	1	2	17	5	6	5	45	17	0	2.2	.5	
June.....	76.2	85.1	67.3	99	58	59	1.5	.44	1.2	1.01	10.07	3	1	1	5	3	2	2	70	7	0	3.2	0	
July.....	82.4	90.9	73.8	102	69	58	.2	0	.2	0	12.33	3	1	1	1	1	3	2	89	3	0	4.0	0	
August.....	81.8	89.8	73.8	99	68	62	.3	0	0	0	11.38	4	(*)	(*)	2	1	1	5	80	8	0	1.8	0	
September.....	75.8	83.8	67.8	99	56	64	1.5	.45	1.8	.89	10.07	6	2	(*)	8	4	3	7	59	11	0	3.5	.2	
October.....	70.0	77.5	62.6	97	50	69	3.8	1.69	7.8	1.39	7.47	3	4	1	18	8	6	7	25	27	0	3.8	2.2	
November.....	61.4	68.4	54.5	84	36	75	5.2	4.60	11.2	2.23	7.47	7	10	4	27	8	8	4	30	14	0	6.0	1.8	
December.....	55.4	61.5	49.3	76	35	76	6.0	8.60	16.8	2.89	10.51	6	8	12	34	8	8	2	16	8	0	9.8	4.8	
Mean.....	66.4	73.8	59.0	.....	.....	67	3.7	.....	.....	.....	8.94	5	6	4	16	6	4	6	41	12	0	56.1	16.8
Total.....	.....	.....	.....	.....	.....	.....	.....	40.46	88.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Extreme.....	.....	.....	.....	102	30	.....	.....	.....	.....	4.11	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Number of years.....	3	3	4	3	4	4	4	4	4	4	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	4	4	4

Authority: Greece—Bul. Mensuel Climatologique.

¹ Less than 0.5 percent.² 28 miles per hour.

STATION—SYRA (SIROS), SYRA ISLAND.—Position, latitude 37° 27' N., longitude 24° 56' E. Altitude, 141 feet

Month	Air temperature °F.					Mean relative humidity (percent)	Mean cloud amount (0-10)	Rainfall			Wind								Average number of days with fog	Average number of days with gales ¹			
	Mean			Extreme				Number of days with rain trace or more	Maximum in 24 hours (inches)	Mean velocity (knots), Scale 0-10	Percentage of observations from—												
	Monthly	Maximum	Minimum	Maximum	Minimum						North	Northeast	East	Southeast	South	Southwest	West	Northwest			Calm		
January.....	52	56	48	69	32	71	6.1	3.97	13	2.56	3.8	37	17	3	2	6	15	9	7	4	0	0	
February.....	54	58	49	73	31	70	5.9	2.56	10	2.44	3.6	29	15	5	4	9	17	10	7	4	.2	.1	
March.....	56	61	51	75	32	68	5.1	2.05	8	1.22	3.4	30	15	5	9	16	8	6	5	6	.6	0	
April.....	62	67	55	83	41	66	3.9	1.02	4	1.14	3.2	25	22	6	4	7	16	9	5	6	.5	.1	
May.....	69	76	62	92	48	63	3.2	.83	4	2.28	2.5	22	23	10	3	7	14	7	4	10	1.5	0	
June.....	77	83	69	101	52	61	1.3	.28	1	1.26	2.4	27	25	11	3	5	11	5	4	9	.8	.1	
July.....	81	87	74	103	65	54	.6	.04	4	.79	3.4	46	30	5	1	2	4	3	4	5	.5	0	
August.....	80	87	74	104	62	56	.6	.20	6	1.09	3.5	52	29	3	1	1	2	2	4	5	.8	.1	
September.....	76	81	69	100	51	62	1.7	.55	2	1.81	3.4	44	25	3	1	2	8	4	1	10	0	.2	
October.....	69	74	64	90	51	71	3.7	1.46	4	2.74	3.2	35	23	5	2	8	10	7	2	8	1	.2	
November.....	61	65	57	80	40	74	5.2	2.91	9	2.79	3.6	31	22	5	4	9	15	5	4	5	.6	0	
December.....	56	60	52	85	32	74	5.9	3.62	11	1.93	3.4	29	16	5	3	11	17	10	4	5	0	0	
Mean.....	66	71	60			66	3.6				3.3	34	22	5	3	6	12	7	4	7			
Total.....								19.49	67												7.0	.5	
Extreme.....				104	31			8.74															
Number of years.....	19	18	18-19	19	20	18	20	21	12	20	19						19					5-1	11

¹ Force 9 or over on scale 0-10.

Authorities: Athens Annales de l'Observatoire National d'Athènes. Livathinos, A. N. Sur la Nebulosité en Grèce, Athènes 1928. Res. Mens. des Obs. des Stations, Météor de Grèce, 1923.

STATION—THESSALONIKI (SALONIKA), GREECE.—Position, latitude 40°31' N., longitude 23°01' E. Altitude, 23 feet

Month	Air temperature, °F.					Relative humidity (percent)		Cloud amount (0-10)		Rainfall			Wind										Average number of days with fog	Average number of days with gales	Average number of days with thunder-storms			
	Mean			Extreme						Average amount (inches)	Number of days with rain	Maximum in 24 hours (inches)	Mean velocity (knots)	Percentage of observations from—														
	Monthly	Maximum	Minimum	Maximum	Minimum									North	Northeast	East	Southeast	South	South west	West	Northwest	Calm						
January.....	41.8	48.2	35.4	67	19	80	65	5.5	5.3	1.47	7	1.07	6.60	23	14	8	5	3	4	3	7	33	7	0	0.3			
February.....	45.6	52.3	38.8	70	15	82	66	5.3	5.9	1.43	8	.91	5.73	22	11	9	6	3	5	5	7	32	4	0	.3			
March.....	50.6	57.4	43.7	79	26	77	60	6.1	5.7	1.63	8	1.40	5.30	14	9	9	7	5	13	4	5	34	3	0	1.2			
April.....	58.1	66.2	50.0	86	33	73	57	5.5	5.5	1.89	8	1.79	5.30	13	6	8	8	6	16	5	6	32	3	0	1.2			
May.....	68.3	77.2	59.4	96	44	71	56	4.8	5.4	2.35	11	3.54	5.30	11	7	8	7	7	19	5	5	31	4	.1	5.6			
June.....	75.2	84.6	65.7	101	52	65	49	2.8	3.6	1.74	7	.78	6.17	15	7	5	7	7	18	6	8	27	4	.1	7.2			
July.....	80.2	90.1	70.2	107	55	60	43	1.8	2.4	1.00	4	2.86	6.17	16	7	5	6	7	19	5	8	27	4	.1	4.8			
August.....	79.4	89.1	69.6	105	56	61	43	2.0	2.6	1.22	3	1.85	6.17	15	6	5	6	7	19	3	6	33	4	0	3.4			
September.....	72.2	81.0	63.5	99	46	68	50	3.4	3.5	1.58	6	1.21	5.30	13	7	8	6	5	18	4	4	35	2	.1	2.5			
October.....	63.8	71.1	56.5	88	33	79	63	4.8	5.0	2.09	9	1.92	4.43	12	8	9	6	5	15	3	4	38	4	.1	1.5			
November.....	52.5	58.6	46.4	79	25	83	68	6.1	5.9	2.70	10	2.15	5.30	20	13	11	4	3	6	4	6	33	6	0	.7			
December.....	46.8	52.5	41.2	71	19	84	74	6.6	6.3	2.39	9	1.33	5.73	22	13	9	6	2	3	2	8	35	9	0	.3			
Mean.....	61.2	69.0	53.4			74	58	4.6	4.8				5.64	16	9	8	6	5	13	4	6	33						
Total.....										21.49	90												54	.5	28.1			
Extreme.....				107	15							3.54																
Number of years.....	13					18	21	15	15	8	8	19	15	15	15	18-19										10	11	18

Authorities: Temperature in Europe. Distribution of precipitation over the earth. Annales Observatoire National D'Athènes. Weather in the Mediterranean.

STATION—THIRA, THIRA (SANTORIN) ISLAND.—Position, latitude 36°25' N., longitude 25°26' E. Altitude, 731 feet

Month	Air temperature, °F.			Relative humidity (percent)		Mean cloud amount (0-10)	Rainfall		Average number of days with thunder-storms
	Mean			0800	1400		Average amount (inches)	Number of days with rain	
	Monthly	Maximum	Minimum						
January.....	50.9	54.7	47.3	74	66	6.5	2.80	13.2	1.1
February.....	52.7	56.7	48.7	74	68	6.5	1.50	9.3	1.0
March.....	53.8	58.5	49.3	73	66	5.7	1.38	7.7	.9
April.....	58.6	63.7	53.8	73	64	4.9	.87	5.6	1.0
May.....	65.8	71.0	59.7	73	61	3.8	.75	4.5	1.4
June.....	71.2	72.0	65.5	72	60	1.9	.04	1.4	.3
July.....	76.5	82.6	70.2	64	53	.2	0	.1	.1
August.....	76.5	82.6	70.2	65	54	.3	0	0	0
September.....	72.1	77.7	66.6	70	59	1.4	.24	1.1	.6
October.....	67.1	72.0	62.2	75	67	3.6	.75	3.9	1.5
November.....	59.4	63.7	55.2	76	69	5.5	2.72	8.9	1.9
December.....	54.0	57.2	50.5	75	70	6.8	3.23	13.9	1.8
Mean.....	63.2	68.2	58.3	72	63	3.9			
Total.....							14.28	69.6	11.6
Extreme.....									
Number of years.....	8½	8½	8½	8½	8½	13½	13½	13½	13½

Authority: Met'l Zeitschrift, vol. 37, Yr. 1910.

STATION—VOLOS, GREECE.—Position, latitude 39° 22' N., longitude 22° 58' E. Altitude, 6 feet

Month	Air temperature °F.					Relative humidity %		Cloud amount (0-10)		Rainfall		Wind										of days with fog	of days with gales 1	of days with thunder-storms	
	Mean			Extreme								Percentage of observations from—													
	Monthly	Maximum	Minimum	Maximum	Minimum	0800	1400	0800	1400	Average amount (inches)	Number of days with rain	Maximum in 24 hours (inches)	Maximum velocity (knots) approximate	North	Northeast	East	Southeast	South	Southwest	West	Northwest	Calm			
January.....	46.4	53.8	39.0	73	19	82	70	6.0	5.7	2.11	9.7	1.85	44-53	16	2	2	7	5	(*)	4	58	6	1.9	0.1	0.2
February.....	48.3	56.1	40.5	77	19	81	69	5.9	5.8	2.26	9.8	1.95	44-53	13	4	3	9	10	1	4	48	1.0	0.2	0.5	
March.....	52.9	61.2	44.6	81	28	78	67	5.6	5.5	1.66	9.2	2.61	44-53	9	2	3	11	19	1	4	41	1.6	0.1	0.5	
April.....	59.0	68.2	49.8	95	34	73	64	4.6	4.9	1.34	7.9	2.34	44-53	7	1	3	11	29	1	6	30	9	1.1	0.1	0.6
May.....	66.9	75.9	57.9	99	42	73	65	4.0	4.5	1.67	8.0	1.89	44-53	6	2	2	8	39	1	5	25	12	0.9	0.3	1.7
June.....	74.6	83.8	65.3	104	50	69	61	2.8	3.2	1.14	6.3	2.05	44-53	8	1	1	5	51	(*)	4	20	12	1.1	0.6	2.3
July.....	79.4	88.9	70.0	108	59	63	56	1.6	1.9	.57	3.0	1.44	44-53	11	2	1	2	55	1	3	16	10	2.4	0.4	1.7
August.....	78.6	88.3	68.9	108	57	63	56	1.7	1.9	1.00	2.6	3.73	44-53	11	3	1	2	52	(*)	2	16	10	1.9	0.9	1.4
September.....	72.8	82.4	63.3	105	46	68	59	2.9	2.9	1.15	4.2	2.92	44-53	9	2	1	5	40	(*)	2	30	12	0.7	0.8	1.8
October.....	78.6	88.3	68.9	108	57	63	56	1.5	2.9	1.00	2.6	3.73	44-53	11	3	1	2	52	(*)	2	16	10	1.9	0.9	1.4
November.....	65.6	74.5	56.8	91	43	80	67	4.7	4.6	2.44	8.4	2.95	44-53	8	1	2	8	25	(*)	5	41	10	1.4	0.7	1.6
December.....	56.6	64.0	49.3	86	31	83	72	6.1	5.7	2.97	10.1	4.45	44-53	11	2	3	8	10	5	52	10	1.4	0	0.6	0.2
Mean.....	50.0	57.2	42.8	77	25	85	74	6.0	5.8	2.28	10.0	2.09	44-53	13	2	2	9	5	(*)	4	59	8	1.2	0.2	0.2
Total.....	62.6	71.2	54.0	108	19	75	65	4.3	4.4	20.59	89.2	4.45	44-53	10	2	2	7	28	1	4	37	9	15.9	2.4	12.1
Extremes.....	.....	.....	.....	108	19	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Number of years.....	32	32	32	32	32	25	25	24	24	32	25	32	28	.....	.....	.....	.....	.....	.....	.....	.....	.....	16	16	25

* Less than 0.5 percent.

† Force 9 or over on scale 0-10.

Authorities:—Annals Obs. Nat'l D'Athens.

OCEAN AREA—Position, latitude 35°-40° N., longitude 20°-25° E. Years covered, 1879-1933

[Greenwich noon observations]

Month	Number of observations surveyed	Wind									Weather												Mean cloud amount (0-10)	
		Mean velocity (knots)	Percentages of observations from—								Percentages of observations recording—													
			North	Northeast	East	Southeast	South	Southwest	West	Northwest	Calm	Haze	Mist	Fog	Drizzle	Rain	Snow	Showers	Thunderstorms	Light to moderate squalls	Heavy squalls	Gales (force 8 or over)		Exceptional visibility
January.....	190	15.0	13	21	9	7	10	11	12	13	4	2	2	0	0	0	0	0	0	0	0	8	11	5.7
February.....	147	15.0	17	14	8	5	9	17	19	10	1	2	2	0	0	0	0	0	0	0	1	10	2.9	
March.....	199	13.0	13	19	10	10	8	9	15	14	1	2	2	0	0	0	0	0	0	0	4	13	4.9	
April.....	193	9.7	13	8	9	7	7	13	21	17	4	4	4	0	0	0	0	0	0	0	1	10	2.9	
May.....	193	8.4	12	7	10	7	9	11	18	22	4	4	4	0	0	0	0	0	0	0	1	20	2.8	
June.....	191	8.0	11	5	5	4	5	5	28	30	4	4	4	0	0	0	0	0	0	0	1	29	2.3	
July.....	244	8.9	19	11	3	3	5	7	17	20	4	4	4	0	0	0	0	0	0	0	1	19	1.4	
August.....	209	8.0	21	15	4	3	5	3	15	31	4	4	4	0	0	0	0	0	0	0	1	19	1.4	
September.....	210	8.9	16	18	7	5	7	6	17	20	4	4	4	0	0	0	0	0	0	0	1	18	1.4	
October.....	234	9.7	13	15	12	10	12	8	13	13	4	4	4	0	0	0	0	0	0	0	1	17	2.9	
November.....	217	13.0	13	11	6	12	20	13	12	11	2	3	3	0	0	0	0	0	0	0	4	17	5.1	
December.....	157	15.5	15	10	5	11	9	16	19	12	3	3	3	0	0	0	0	0	0	0	8	7	6.0	
Mean.....	11.1	15	13	7	7	9	10	17	19	3	4	2	(*)	(*)	(*)	4	(*)	3	(*)	4	(*)	3	12	3.9
Total.....	2,384																							

* Less than 0.5 percent.

Compiled by the U. S. Weather Bureau.

OCEAN AREA—Position, latitude 35°–40° N., longitude 25°–30° E. Years covered, 1885–1933
(Greenwich noon observations)

Month	Number of observations surveyed	Wind										Weather													Mean cloud amount (0-10)
		Mean velocity (knots)	Percentages of observations from—									Percentages of observations recording—													
			North	Northeast	East	Southeast	South	Southwest	West	Northwest	Calm	Haze	Mist	Fog	Drizzle	Rain	Snow	Showers	Thunderstorms	Light to moderate squalls	Heavy squalls	Gales (force 8 or over)	Exceptional visibility		
January	50	13.5	10	19	13	17	9	2	11	17	2	8	0	0	0	0	8	2	2	0	4	0	2	16	5.1
February	39	17.6	23	22	0	0	8	14	14	19	0	0	0	0	2	2	0	0	0	8	0	2	12	5.0	
March	70	14.0	24	15	3	6	15	19	8	8	2	1	1	0	0	4	1	2	0	0	0	10	4.9		
April	75	11.1	24	21	2	3	8	8	10	20	4	4	0	0	0	5	0	0	0	2	0	1	10	4.4	
May	73	8.4	20	4	4	6	12	17	9	22	6	6	0	0	0	1	0	1	1	0	0	0	4	2.3	
June	76	9.7	22	6	1	3	8	5	23	29	3	1	0	0	0	1	0	3	0	4	0	3	8	2.4	
July	81	13.0	22	18	3	0	0	3	10	43	1	5	0	0	1	0	1	0	0	3	0	3	4	2.8	
August	67	14.5	35	15	2	0	0	3	11	33	1	3	3	0	0	0	0	0	0	0	0	14	1.4		
September	91	10.6	31	13	2	3	6	6	13	23	4	6	2	1	1	2	0	0	0	0	0	10	2.2		
October	88	10.6	28	10	1	7	12	10	8	22	2	2	2	0	0	0	0	0	0	2	0	1	7	3.3	
November	78	13.5	18	20	7	16	14	9	7	8	1	1	1	1	1	6	0	0	0	0	0	2	14	4.5	
December	47	11.6	11	19	15	12	23	9	2	7	2	0	0	0	0	2	0	7	0	4	0	2	10	5.5	
Mean Total	835	12.3	22	15	4	6	10	9	11	21	2	3	1	(*)	(*)	3	(*)	2	(*)	4	0	3	9	3.6	

*Less than 0.5 percent.

Compiled by the U. S. Weather Bureau.

OCEAN AREA—Position, latitude 40°–45° N., longitude 25°–30° E. Years covered, 1885–1933
(Greenwich noon observations)

Month	Number of observations surveyed	Mean velocity (knots)	Wind									Weather													Mean cloud amount (0-10)
			Percentages of observations from—									Percentages of observations recording—													
			North	Northeast	East	Southeast	South	Southwest	West	Northwest	Calm	Haze	Mist	Fog	Drizzle	Rain	Snow	Showers	Thunderstorms	Light to moderate squalls	Heavy squalls	Gales (force 8 or over)	Exceptional visibility		
January	37	13.0	20	42	6	3	3	8	6	9	3	0	0	0	0	14	7	5	0	15	0	6	15	6.9	
February	38	12.5	22	28	3	3	9	14	3	12	6	2	0	5	0	5	0	2	0	5	0	0	10	6.2	
March	71	8.0	14	27	9	7	11	14	5	5	8	6	3	3	1	6	1	0	0	0	0	0	8	3.9	
April	61	8.9	14	30	12	5	10	12	4	6	7	3	0	0	0	2	0	0	0	1	0	2	8	3.9	
May	72	8.0	11	24	12	8	9	14	9	12	1	4	3	1	1	3	0	1	1	3	0	2	14	4.6	
June	60	8.4	19	21	13	2	6	8	10	14	7	2	0	2	2	0	0	0	0	2	0	2	3	3.1	
July	66	9.7	23	26	9	6	6	9	10	12	0	6	1	3	0	0	0	1	1	4	0	0	8	2.0	
August	81	10.2	23	36	8	8	6	7	5	6	1	0	1	0	0	2	0	1	0	1	0	0	16	2.4	
September	90	10.2	24	31	11	3	8	6	5	7	5	1	0	1	0	2	0	0	11	0	0	3	6	3.7	
October	89	10.6	15	41	7	4	3	12	6	1	6	0	0	1	0	5	0	2	3	3	0	2	12	4.5	
November	71	12.0	23	16	6	6	24	13	3	7	2	0	0	1	1	8	0	2	0	4	0	3	11	6.4	
December	42	15.0	27	36	7	7	7	7	0	7	2	10	2	2	5	17	7	2	2	7	0	5	2	7.4	
Mean Total	778	10.5	20	30	9	5	9	10	5	8	4	3	1	2	1	5	1	1	2	4	0	2	9	4.8	

Compiled by the U. S. Weather Bureau.

GLOSSARIES

Words occasionally found on the charts and in the Sailing Directions

GREEK

Greek	English	Greek	English
Ag-íos, ía, íon.....	Saint.	Megál-os, í, o.....	Big, great.
Akra.....	Cape.	Még-as, áli, a.....	Big, great.
Akrotírión.....	Cape, promontory.	Míkr-ós, á, ón.....	Small, little.
Aktí.....	Coast.	Monastírión.....	Monastery.
Alíki.....	Salt-pan.	Moní.....	Monastery.
Ano, apáno.....	Upper.	Né-os, a, on.....	New.
Aspr-os, í, o.....	White.	Nísi, Nísla.....	Island, islands.
Avath-ís, ís, és.....	Shallow.	Nísis, Nísidhes.....	Islet, islets.
Avlákí.....	Channel.	Nísos, Nísiá.....	Island, islands.
Avlax.....	Channel.	Órmos.....	Bay.
Ay-íos, ía, íon.....	Saint.	Oros, Óri.....	Mountain, mountains.
Dhíavlos.....	Strait.	Palai-ós, á, ón.....	Old.
Dhiórix.....	Canal.	Pali-ós, á, ó.....	Old.
Epáno.....	Upper.	Pélagos.....	Sea.
Fáros.....	Lighthouse	Pérama.....	Ferry.
Hag-íos, ía, íon.....	Saint.	Pétra.....	Rock, stone.
Ifalos.....	Reef.	Pirgos.....	Tower.
Kástron.....	Castle.	Porthmos.....	Narrows of a strait.
Káto.....	Lower.	Potamos, Potami.....	River.
Kávos.....	Cape.	Pounda.....	Point.
Kefáli.....	Head.	Skála.....	Small port, quay, rocky stairway.
Khersónisos.....	Peninsula.	Skópelos.....	Reef.
Khóra.....	Main town of an island.	Setnón.....	Strait, pass.
Khoríon, Khorío.....	Village.	Stíli.....	Beacon, pillar.
Kólpos.....	Gulf.	Vounó.....	Hill, mountain.
Levk-ós, í, ón.....	White.	Vrákhos.....	Rock.
Limn, Limáni.....	Harbor.	Xéra.....	Reef.
Límní.....	Lake.		
Mávr-os, í, o.....	Black.		

TURKISH

Turkish	English	Turkish	English
Ada.....	Island.	Körfez.....	Bay.
Adacık.....	Islet.	Koy.....	Bight, cove.
Adalar.....	Islands.	Köy.....	Village.
Agaç.....	Tree.	Küçük.....	Small.
Agiz.....	Mouth.	Kule.....	Tower.
Ak.....	White.	Kum.....	Sand.
Alâmet.....	Beacon.	Liman.....	Harbor.
Balcık.....	Clay.	Liman reisi.....	Harbor master.
Bataklık.....	Marsh.	Lodos.....	Southwest wind.
Beyaz.....	White.	Mendirek.....	Mole.
Boğaz.....	Channel, estuary, strait.	Mercan.....	Coral.
Bük.....	Bay, creek.	Minare.....	Minaret.
Burun, Burnu.....	Point, cape, headland, promontory.	Nehir.....	River.
Büyük.....	Great.	Nışan.....	Beacon.
Camur.....	Mud.	Orman.....	Forest.
Çay.....	River, stream.	Ova.....	Plain.
Çenub.....	South.	Poyraz.....	Northeast.
Çiftlik.....	Farm.	Pusula.....	Compass.
Çorak.....	Marsh.	Rüzgâr.....	Wind.
Dağ.....	Mountain.	Şamandıra.....	Buoy.
Demiryeri.....	Anchorage.	Şancak.....	Flag, district.
Deniz.....	Sea.	Saray.....	Palace.
Dere.....	Valley, stream.	Sarı.....	Yellow.
Derin.....	Deep.	Sark.....	East.
Döküntü.....	Reef.	Sarkı.....	Eastern.
Eski.....	Old.	Sarp.....	Steep.
Fener.....	Light.	Şehir.....	City, town.
Garb.....	West.	Set.....	Mole.
Gök.....	Blue.	Şiflik.....	Shoal.
Göl.....	Lake.	Simal.....	North.
Gümrük.....	Customhouse.	Siyah.....	Black.
İrmak.....	River.	Su.....	Water.
İskele.....	Landing place.	Tabya.....	Battery.
Kaba kum.....	Gravel.	Taşlık.....	Stony ground.
Kale, Kalesi.....	Castle.	Tepe.....	Hill.
Kapı.....	Gate, pass.	Topuk.....	Bar of a river.
Kara.....	Black.	Tuzla.....	Salt-pan.
Kaya.....	Rock.	Uzun.....	Long.
Kayalık.....	Rocky.	Vilâyet.....	Province.
Kible.....	South.	Yar.....	Bluff, cliff, hill.
Kılavuz.....	Pilot.	Yarımada.....	Peninsula.
Kilise.....	Church.	Yeni.....	New.
Kırmızı.....	Red.	Yol.....	Channel, route.

ITALIAN

Italian	English	Italian	English
Aequitrino.....	Swamp.	Palude.....	Swamp, marsh.
Altezza.....	Height.	Passo.....	Pass, channel.
Alto, a.....	High, lofty.	Penisola.....	Peninsula.
Alzata.....	Embankment.	Pericolo.....	Danger.
Ancoraggio.....	Anchorage.	Piano.....	Plain, flat.
Archipelago.....	Archipelago.	Pianura.....	Plain.
Azzuro.....	Blue.	Picco.....	Peak.
Bacino.....	Basin, dock.	Piccolo, Picciolo.....	Small, little.
Baia.....	Bay.	Pietra.....	Stone.
Balza.....	Rock, cliff, precipice.	Pila.....	Pile.
Banchina.....	Quay, wharf.	Pilastro.....	Pillar, pile.
Banco, Banchi.....	Bank, banks.	Poggio.....	Mound, little hill.
Barra.....	Bar.	Ponte.....	Bridge.
Bassofondo.....	Shoal, shallow.	Pontile.....	Pier.
Bianco.....	White.	Porto.....	Port, harbor.
Bocca, Bocche.....	Mouth or entrance to a river, bay, or strait.	Promontorio.....	Promontory.
Bosco.....	Wood, forest.	Punta.....	Point.
Cala, Calanca.....	Creek or little bay.	Rada.....	Road.
Calata.....	Wharf.	Rafo (local dialect).....	Shoal, sandbank.
Campanile.....	Campanile, belfry, steeple.	Riva.....	Coast, bank.
Canale.....	Canal, channel.	Rocca.....	Rock.
Capo.....	Cape, headland.	Roccia.....	Rock, precipice.
Casa.....	House.	Roccioso.....	Rocky.
Casino.....	Countryhouse, club.	Rondo.....	Round.
Castel, Castello.....	Castle.	Rosa.....	Pink.
Cima.....	Summit.	Rosso.....	Red.
Città.....	City, town.	Rotondo.....	Round.
Collina.....	Hill.	Rovina.....	Ruin.
Corallo.....	Coral.	Rupe.....	Rock, crag, cliff.
Darsena.....	Wet dock or basin, dockyard.	Sabbia.....	Sand.
Entrata.....	Entrance.	Salina.....	Salt water lagoon.
Fiumara.....	River.	Santo.....	Holy, sacred.
Flume.....	River.	Sasso.....	Stone, pebble, rock.
Fiumicino.....	Rivulet.	Sbarcatoio.....	Landing place, quay.
Fondo.....	Bottom.	Scirocco.....	Southeast.
Foresta.....	Forest, wood.	Scoglio.....	Rock, reef.
Forte.....	Fort.	Scogliera.....	Ridge of rocks.
Fortino.....	Small fort.	Secca.....	Shoal, sandbank.
Golfo.....	Gulf, bay.	Segnale.....	Signal, mark.
Grande.....	Great.	Seno.....	Small bay, creek.
Greco.....	Northeast.	Settentrionale.....	Northern.
Imboccatura.....	Mouth of river.	Settentrione.....	North.
Insensatura.....	Cove.	Spalla.....	Shoulder, back, summit.
Isola.....	Island.	Sponda.....	Bank, border, edge.
Isolotto.....	Islet.	Stagno.....	Lake, pond.
Istmo.....	Isthmus.	Strada.....	Road.
Lago.....	Lake.	Stretto.....	Strait.
Levante.....	East.	Tavola.....	Table, list.
Maestro.....	Northwest.	Testa, Testata.....	Head.
Mare.....	Sea.	Tondo.....	Round.
Marina.....	Beach, landing place for village or town a little inland.	Torre.....	Tower.
Meridionale.....	Southern.	Torrente.....	Stream, torrent.
Mesogiorno.....	South.	Tramontana.....	North.
Molo.....	Mole.	Valle.....	Valley.
Montagna.....	Mountain.	Vecchio.....	Old.
Monte.....	Mount, mountain, hill.	Verde.....	Green.
Nero.....	Black.	Vetta.....	Summit.
Nuovo.....	New.	Via.....	Road, street.
Occidentale.....	Western.	Villa.....	Villa.
Orientale.....	Eastern.	Villaggio.....	Village.
		Vulcano.....	Volcano.

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CONVERSION TABLES

FEET TO METERS

Feet	0	1	2	3	4	5	6	7	8	9
0	0.00	0.30	0.61	0.91	1.22	1.52	1.83	2.13	2.44	2.74
10	3.05	3.35	3.66	3.96	4.27	4.57	4.88	5.18	5.49	5.79
20	6.10	6.40	6.71	7.01	7.32	7.62	7.92	8.23	8.53	8.84
30	9.14	9.45	9.75	10.06	10.36	10.67	10.97	11.28	11.58	11.89
40	12.19	12.50	12.80	13.11	13.41	13.72	14.02	14.33	14.63	14.93
50	15.24	15.54	15.85	16.15	16.46	16.76	17.07	17.37	17.68	17.98
60	18.29	18.59	18.90	19.20	19.51	19.81	20.12	20.42	20.73	21.03
70	21.34	21.64	21.95	22.25	22.55	22.86	23.16	23.47	23.77	24.08
80	24.38	24.69	24.99	25.30	25.60	25.91	26.21	26.52	26.82	27.13
90	27.43	27.74	28.04	28.35	28.65	28.96	29.26	29.57	29.87	30.17

FATHOMS TO METERS

Fathoms	0	1	2	3	4	5	6	7	8	9
0	0.00	1.83	3.66	5.49	7.32	9.14	10.97	12.80	14.63	16.46
10	18.29	20.12	21.95	23.77	25.60	27.43	29.26	31.09	32.92	34.75
20	36.58	38.40	40.23	42.06	43.89	45.72	47.55	49.38	51.21	53.03
30	54.86	56.69	58.52	60.35	62.18	64.01	65.84	67.67	69.49	71.32
40	73.15	74.98	76.81	78.64	80.47	82.30	84.12	85.95	87.78	89.61
50	91.44	93.27	95.10	96.93	98.75	100.58	102.41	104.24	106.07	107.90
60	109.73	111.56	113.39	115.21	117.04	118.87	120.70	122.53	124.36	126.19
70	128.02	129.85	131.67	133.50	135.33	137.16	138.99	140.82	142.65	144.47
80	146.30	148.13	149.96	151.79	153.62	155.45	157.28	159.11	160.93	162.76
90	164.59	166.42	168.25	170.08	171.91	173.74	175.56	177.39	179.22	181.05

METERS TO FEET

Meters	0	1	2	3	4	5	6	7	8	9
0	0.00	3.28	6.56	9.84	13.12	16.40	19.68	22.97	26.25	29.53
10	32.81	36.09	39.37	42.65	45.93	49.21	52.49	55.77	59.06	62.34
20	65.62	68.90	72.18	75.46	78.74	82.02	85.30	88.58	91.86	95.14
30	98.42	101.71	104.99	108.27	111.55	114.83	118.11	121.39	124.67	127.95
40	131.23	134.51	137.80	141.08	144.36	147.64	150.92	154.20	157.48	160.76
50	164.04	167.32	170.60	173.88	177.16	180.45	183.73	187.01	190.29	193.57
60	196.85	200.13	203.41	206.69	209.97	213.25	216.54	219.82	223.10	226.38
70	229.66	232.94	236.22	239.50	242.78	246.06	249.34	252.62	255.90	259.19
80	262.47	265.75	269.03	272.31	275.59	278.87	282.15	285.43	288.71	291.99
90	295.28	298.56	301.84	305.12	308.40	311.68	314.96	318.24	321.52	324.80

METERS TO FATHOMS

Meters	0	1	2	3	4	5	6	7	8	9
0	0.00	0.55	1.09	1.64	2.19	2.73	3.28	3.83	4.37	4.92
10	5.47	6.01	6.56	7.11	7.66	8.20	8.75	9.30	9.84	10.39
20	10.94	11.48	12.03	12.58	13.12	13.67	14.22	14.76	15.31	15.86
30	16.40	16.95	17.50	18.04	18.59	19.14	19.68	20.23	20.78	21.33
40	21.87	22.42	22.97	23.51	24.06	24.61	25.15	25.70	26.25	26.79
50	27.34	27.89	28.43	28.98	29.53	30.07	30.62	31.17	31.71	32.26
60	32.81	33.36	33.90	34.45	35.00	35.54	36.09	36.64	37.18	37.73
70	38.28	38.82	39.37	39.92	40.46	41.01	41.56	42.10	42.65	43.20
80	43.74	44.29	44.84	45.38	45.93	46.48	47.03	47.57	48.12	48.67
90	49.21	49.76	50.31	50.85	51.40	51.95	52.49	53.04	53.59	54.13

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